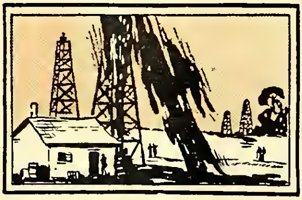
Louisiana Conservation REVIEW



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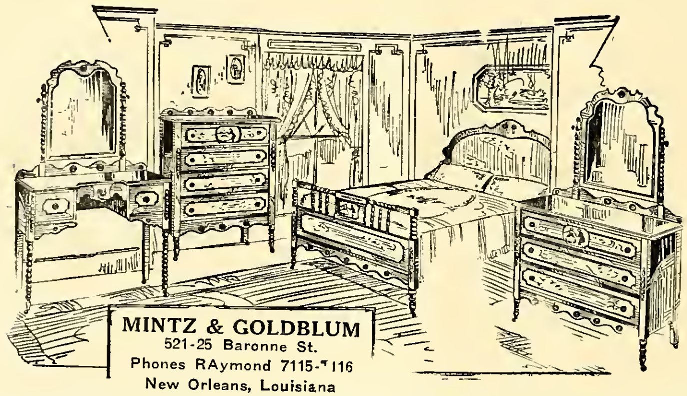

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CONSERVATION REVIEW

Published by the
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ROB'T S. MAESTRI, Commissioner

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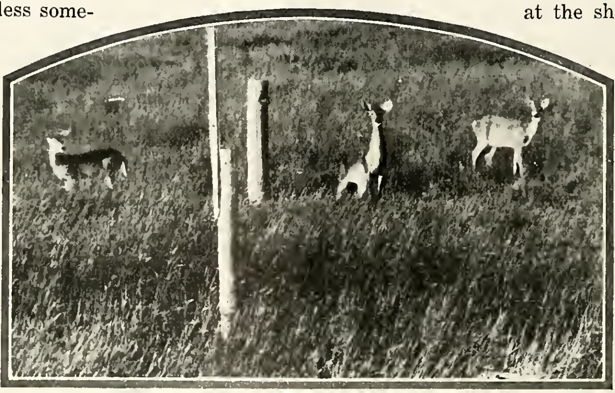
ARRESTED MOTION
A remarkable study made by daylight, as the sun shone through the treetops.

Pictures of the Whitetails[*] - - -

By BEN EAST

THE SUN dropped steadily down toward the tall spruce spires along the western edge of the little clearing. Long shadows crept steadily out from the dark wall of forest that rimmed the meadow and we watched those shadows anxiously, eagerly.

The remaining minutes of sunlight were few. Unless something caused the five whitetail deer—feeding with provocative slowness toward the center of the clearing—to quicken their pace they would come within camera range too late for good light.



From the window of the old cabin we photographed the deer on the salt lick, but a few yards away.

Still the sun dropped, still shadows lengthened, and still the deer came on, a foot at a time, nibbling daintily at the short grass.

Behind us the surf beat with a soft, steady whisper on the stony beach of the Straits of Mackinac. The brisk wind that swept in off the straits was sharp with the chill of early spring and the branches of the lone pine at the shoreward side of the clearing afforded only a meager shelter.

My teeth chattered until I wondered whether they would betray me should the deer come close enough for pictures. I glanced down at Floyd Brunson, superintendent of Wilderness State Park, and at

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[*] Reprinted by special permission from March, 1931, Issue of "American Forests."

Less than a hundred feet of where I lay in hiding with my camera the deer came, in no great hurry, apparently sensing no alarm. Still it was only a picture of deer on the run, not the sort I had really hoped to get.

Mike Laway, Big Stone Bay fisherman, to see how they fared. They were hidden behind a low bank where the wind could not strike and suffered far less than I.

The rim of the great red orb touched the tip of the highest spruce spire, and I leveled my camera and studied the deer—five tiny gray dots on the ground glass. With a more powerful lens I might have made it. As it was there was no use to press the shutter release. When I looked again the sun was a blazing ball caught in the latticed tops of the forest. The light was gone. I had failed again.

This was by no means the first time I had tried without success to make pictures of the whitetails in their summer pastures. Small wonder that George Shiras, III, Marquette naturalist, who pioneered in the great field of wild-life photography, said many years ago that the deer of northern Michigan were probably the most difficult camera subjects of all the wild animals he had encountered.

From below the rim of the bank we watched that band of deer for more than a half hour, while dusk deepened over the northern forest and an unseasonably early whippoorwill set up his cadenced calling back in the timber. They finally worked their way along toward the far corner of the clearing, close to the crest of a steep, wooded bank. Others came out of the woods to join them and five of the herd made their way almost to the edge of the bluff.

Then just to test the eyesight of the feeding deer, I left our hiding place by the pine and walked along the foot of the bluff. Coming to one of their well-traveled runways that led up the steep bank, I carefully made my way up, inch by inch, stepping on no dry twig, letting no alder or young birch swish against my clothing.

My head came level with the top of the bluff and through a fringe of low brush I peered out

The light was fading and there was no chance for a second attempt. At the clatter of the shutter, they leaped as at the sting of an arrow, five flags pointed skyward and the five deer rocked away.

over the darkening meadow. Five deer fed peacefully, literally within stone's throw of me, blissfully unaware that I was on the same continent with them. The nearest was no more than fifty feet away. Very carefully I pulled myself up until only the fringe of brush separated me from the deer. Then with the utmost caution, moving only when all five were feeding, I wormed through the brush until I was clear of all cover. There in the open field, within forty feet of the nearest doe, I came slowly to my feet.

It was incredible! I had moved up and surprised an animal that in all the forest has few peers for wariness. I was standing erect now, unbelievably close to them, and because their noses and ears brought them no warning—I had the wind across my shoulders, of course—they had no suspcion of my presence.

I think at that moment I felt the same triumphant thrill that quickens the pulse of wolf or cougar at the end of a successful stalk, just when the muscles are flexing for the long soaring leap or the swift scrambling rush.

I had brought my heavy camera with me, futile as I knew it to be. Slowly I opened it, lifted and leveled it and brought it to focus on the nearest doe, moving with clocklike deliberation. In the waning light the deer was only a gray smudge on the finder, but I tripped the shutter anyway.

At its clatter the five deer leaped as at the sting of an arrow, facing me with heads lifted, ears erect, all alarm and consternation. For a few seconds they stared, striving to locate the danger that had moved upon them, the menace they had heard but could not see. Then I whistled softly, and they waited no longer upon the identity of their visitor or the order of their going. Five flags flashed white in the dusk, and from the timber a sharp snort rang out, to send other flags flying woodsward farther along the edge of the meadow.

I wondered how long it would take them to recover from their fright, whether they would again come confidently out into the old clearing that evening in quest of young grass. After supper I drove along a little-used road at the foot of the bluff. At the point where the timber thinned out the darkness ahead was suddenly stabbed by a great constellation of greenish stars, always in pairs.

I stopped the car and turned on a powerful spotlight. In its searching beam I watched the deer come back from the beach where they had gone for water, their eyes still flashing like twin balls of luminous fire. They crossed the road before me, some running, some walking, and went clambering up the steep runways that led to the crest of the bluff.

Since then and before that evening I have tried many times to make pictures of the whitetails. Usually I have failed, for it is, as Shiras said, no easy task to photograph these fleet-footed folk of the timberlands in their summer pastures.

Quietly and contentedly feeding one minute, the next she faced me, head lifted, ears erect, ready to meet any emergency.

Once or twice I have succeeded after a modest fashion, but on only one occasion have I made deer pictures that really satisfied my photographic lust. Then it was amazingly easy.

On Crane Island, the day after my failure in the clearing, I tried again, under different circumstances this time—and with somewhat better luck. Separated from the mainland by a narrow, deep cut, Crane Island is an interesting place so far as the whitetails are concerned. One may visit there in late summer or autumn and never find a deer. One may tramp the length and breadth of the island on snowshoes in winter, walking over the tops of the low cedars that barred the way in August, and not see so much as the track of a deer. The trails of snowshoe hares will be everywhere in the cedar and through the patches of aspen, and one may cross the trail of a lone fox or coyote. But never is a deer runway visible, despite the fact that cedar browse is abundant and that deer are wintering on the mainland only a short distance away.

But a visit to Crane Island—it is shown on the old charts as Waugoshance Island—from early May until late June or July will be likely to disclose deer in every patch of timber. Tiny clumps of cedar that appear inadequate to hide a crow will provide ample cover for a full-grown doe in those spring weeks.

One may flush does from patches of timber on Crane Island during May and June, may see them feeding along the beaches, or surprise them off the little sandy points.

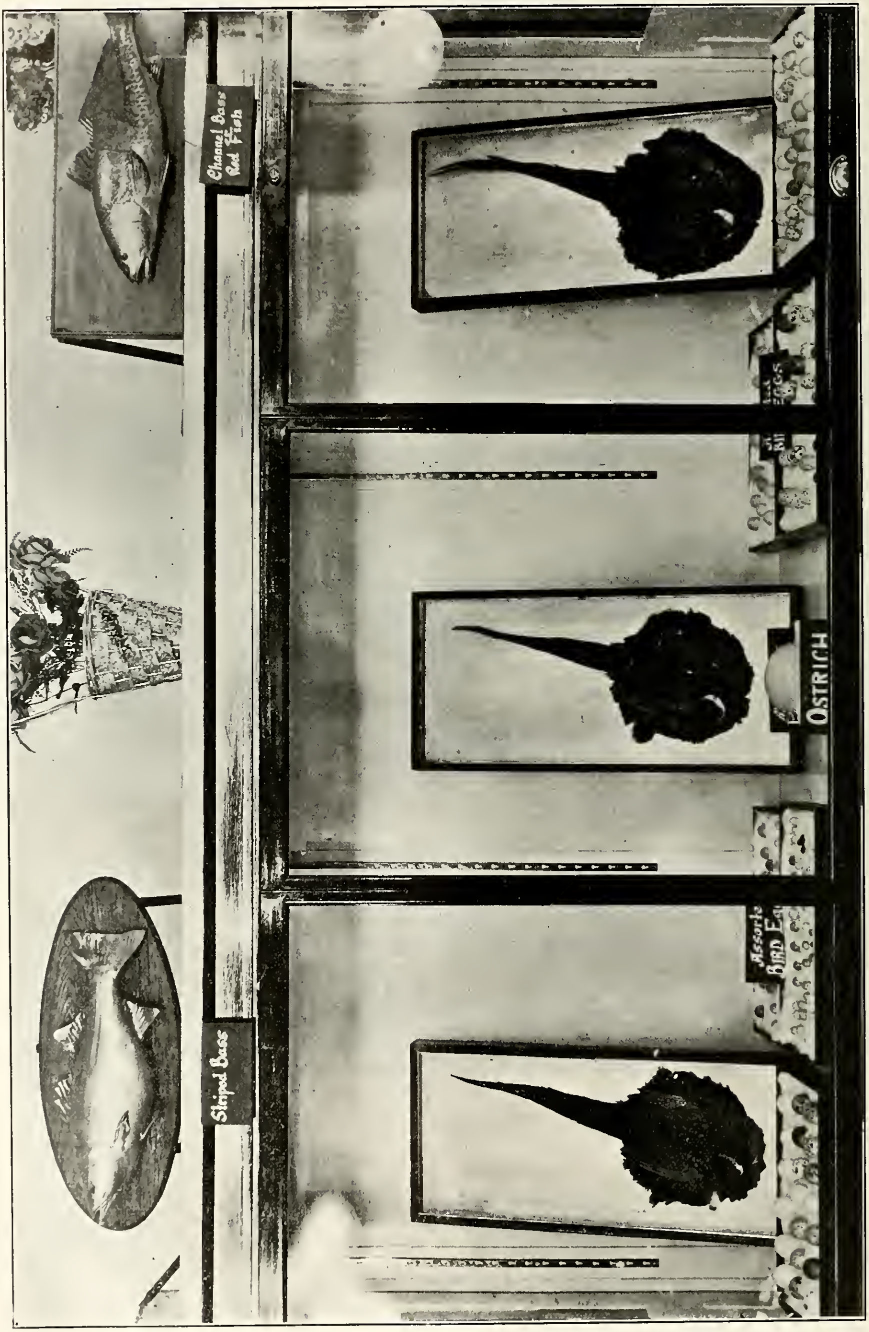
One may flush does from patches of timber on Crane Island during May and June, may see them feeding along the beaches, may surprise them off little sandy points, standing knee deep in the cold water of the straits. And one will find, in addition to this abundance of does, tiny spotted fawns hidden in the tall grass back of the beach or lying in the shade of cedar clumps where their anxious mothers have hidden them away.

For Crane Island is a natural fawning refuge for the deer of that region. Years ago, no one knows how long, the does began swimming across the cut in early spring, doubtless seeking a place of safety from timber wolves and other enemies that ranged the wilderness. The habit has come down through the years, perhaps through the centuries, doubtless from the days when elk roamed the forests of Michigan and caribou wandered south as far as the Straits of Mackinac on their winter migration.

There the fawns are born and there the does remain until the summer pasturage becomes scarce and the fawns are old enough to be led across the cut to the mainland. Then Crane Island sees no more deer until another spring.

In a patch of cedar and aspen on the island I cornered five does simply by driving them one by one from the smaller thickets. When the five were gathered in the timber, Brunson and Laway went around to the westward and came down the beach with the wind, driving the band out of cover within less than a hundred feet of where I lay in hiding with my camera.

They came in no great hurry, in single file with their flags down, an unerring sign that they sensed no great alarm. A fairly good picture rewarded this strategy. Still, it was a picture of deer on the run, driven past the blind, not deer at home in the summer woods, quiet and undisturbed. Nor was there a chance for a second attempt. At the clatter of the shutter five flags leaped skyward and five deer rocked away down the beach. When I finally did succeed in making the whitetail pictures I had futilely coveted so long, it was as might have been expected, easy to the point of absurdity. At an ancient cabin, buried in the northern wilderness, miles from the nearest neighbor and occupied by a friendly trapper who had made the deer offerings of salt all summer, I found one July afternoon a band of whitetails so tame that filming them was only a little more difficult than photographing a flock of sheep. It far exceeded sheep photography for thrills, however. While we slept in the cabin that night a doe, doubtless this same one, came up and rubbed her muzzle against our window screen. The next morning at sunrise we pointed the camera through an open window in the loft of the cabin and photographed does and bucks on a salt lick but a few yards away until we grew weary of it. For a day and a half there at the ancient, wilderness-cloistered cabin we reveled in friendly intimacy with the whitetails. If I am never again privileged to make a closeup picture of an unfrightened deer *(Continued on page 26)*



Pheasants and assorted eggs of birds that abound within Louisiana's domains. (Conservation Museum.)

Propagation of Pheasants in Louisiana

By
DR. M. H. FOSTER

GALLINACEOUS fowls are known the world over in both the wild and the domesticated state. The types native to North America are our own quail, grouse, and turkey, and the chapparal cock of Mexico, all sombre hued. On the Asiatic continent this group is represented by a bewildering array of pheasants, consisting of varieties too numerous to mention, and comprising birds of the most brilliant plumage.

OCCURRENCE AND DISTRIBUTION OF PHEASANTS

Naturalists are agreed that the ancestral home of these fowls was the Himalayan region, together with its adjacent elevated plateaus and broad stepped, broken plains. From this region, by processes of biological specialization, and variety adaptation to conditions of climate and food habits, the different members of this family have acquired a well nigh universal distribution. They became indigenous to the Asiatic continent from the Black Sea to Japan, and from Manchuria to the Malay States, Borneo, Sumatra, and Java. There is evidence that in Miocene times a variety of pheasants, larger than our turkeys, lived in the South of France from the vine clad valley of the Garonne to the rugged summits of the Pyrenees.

VARIETIES

For the purpose of this discussion, it is desirable to divide pheasants into the *Aviary* and the *Game* types. The former may be seen at our splendid Audubon Park and similar zoos. It consists of the golden, silver, amhurst, tragopan, kaleege, eared, fireback, and impeyan. All are expensive and some unobtainable. The first three have been hand-bred for a sufficient period to be relative disease resistant, and are susceptible to *semi*-domestication.

The "game" varieties are the reeves, cheer, mongolian, blackneck and ringneck. The price of game stock ranges from $35.00 for a pair of reeves, to possibly as little as $7.00 for a pair of ringnecks. They are seasonably obtainable, and are usually to be had in abundance from hand-raised American stock. It is claimed that more pheasants are raised in America today than exist in all of China.

There are so many different kinds of pheasants, that I never heard of any one attempting to enumerate them, but every one, and all of our domestic poultry as well, sprang from the little red and black jungle-fowl of North central India. This jungle-fowl, therefore, rates in human ecology as the most important wild bird living on earth.

The game pheasants are mentioned above in order, according to the altitude of their habitat in the feral state.

1. The *Reeves* is a most magnificent game bird, sporting gaudy tail plumage five feet long, and is native to the high altitudes of the Himalayas. Dr. Fayette C. Ewing of Alexandria, told me that he was entertained at a pheasant shoot in the Scotch Highlands, where reeves pheasants are propagated for the purpose.
2. The *Cheer* lives at a similar altitude with the reeves, and is hunted in Nepal and Northern India. They are not artificially propagated.
3. The *Mongolian* is found along the lower reaches of the Oxus River, and in the areas around the Southern and Eastern shores of the Aral sea, into which the Oxus flows. According to Rowell,[2] it is the greatest sporting bird of the pheasant family for rough and wooded country which is located in a moderately warm climate.
4. The *Rion* or blackneck, is native to the plains lying between the Black and the Caspian seas, whence it was transported to England by the Romans, and has become the common game bird of the English moors.
5. The *Ringneck* is the native bird of the Chinese rice flats. It was transported to the Pacific Coast about forty-five years ago by Judge Denny of Portland, when he was Consul of Shanghai.[3] They readily adapted themselves to that counrty, and for many years have been as definitely established there as the Bob white is to our own uplands. The California Game and Fish Commission has planted large numbers of these birds in the mountains and foothills of that state, but reports that they will not remain in this rough country.

Whenever it is desired to maintain the native game stock in normal abundance, or to establish a foreign variety in a given locality, it is necessary to adopt a program based on the four cardinal requirements of game propagation, and this program must be rigidly adhered to with constant vigilance.

1. Type must be selected to suit the location. The ringneck was brought to America from the rice flats of the Yangtze valley, which river flows along the general course of the thirtieth parallel of North latitude. Inasmuch as this is precisely the latitude of New Orleans and New Iberia, it might be assumed that the ringneck would be very appropriate for such location, but this has not been borne out by experience.

When Mr. M. L. Alexander was Commissioner of Conservation, the ringneck was tried out on Marsh Island by Mr. Edward McIlhenny. The Urania Lumber Company also made a planting in LaSalle Parish. The bird was not established in either place. McAtee says, "Cold weather does not seem to hurt the ringneck, which has thrived best in the Northernmost states, while in the South it has hardly succeeded at all."[4]

The Mongolia, on the other hand, is found along the Oxus river, and South and East of the Aral sea, into which the Oxus flows. This is a wide depressed region of low hills, broken by wooded watercourses and corn, clover, millet and peas are grown. Rice is grown abundantly in the lowlands. This area is on the forty-second parallel, which is in the same latitude with DesMoines and the Great Salt Lake. Due to a much lower altitude, a much warmer climate prevails in the native habitat of the Mongolian than we have at the corresponding latitude here in America. It is, therefore, recommended as the proper type for the Southern states[2] where the ringneck has failed, and we believe it is the best one of any foreign species with which to undertake propagation experiments here in Louisiana.

2. Health and Sanitation: Adult pheasants are hardy and disease resisting. Chicks cannot be raised upon ground which is polluted by poultry. They are placed in runs on peat litter, hardware cloth, or close clipped grass and the run is moved frequently. They must be kept free from intestinal parasites and lice. Fresh, uncontaminated drinking water is essential.

3. Vermin Control: Mr. Otis B. Taylor[5] of the Game Institute, lists a group of game destroyers, and gives methods for their control in January, 1931, Game Breeder. They are cats, rats, weasles, minks, crows, hawks, and owls. To this we may add opossum, skunk, snake, and self-hunting dog. Fox have now become sufficiently numerous in Louisiana to account for many young quail and eggs. This entire topic is so completely covered by Gene Simpson[3] and others, that detailed methods will not be recited here. Game planting without control measures is nothing but an open invitation for predatory creatures to visit a well filled lunch counter.

Our own state forest is almost perfectly protected against law violation, and all forms of human depredation. The State of Louisiana has not yet officially recognized the destruction which is committed both day and night, the whole year through, by non-human violators. Last spring one chicken snake destroyed two settings of pheasant eggs, and a little later on, after young pheasants had been taken from the hens and placed in holding pens, one opossum broke in and killed a greater number of young birds than our stock amounted to at the beginning.

Game will never be made plentiful by legislation alone. We have tried legislating, and we have realized short open seasons, and still shorter bag limits. Game propagation and a rational program of vermin control will make it possible to revise upward both the season duration and the bag limit.

4. Feed and Cover Crops: McAtee[4] characterizes good upland game coverts as low, dense, stiff or thorny shrubbery, among luxuriant growths of grasses and weeds. Such cover produces an abundance of berries, wild rose apples, grass and smart weed seeds, and an innumerable variety of wild legumes, beggar lice, and Japan clover, all of which taste more or less like alfalfa seed. William A. Murrill,[6] in a recent article, profusely illustrated, shows how more game results from planting mulberries, cherries, chinaberries, hackberries, sumac, chincapins, chestnuts, elder, gum, dogwood, holly, witch-hazel, sassafras, cedar, and persimmon.

Miss Caroline Dormon[7] has written a handbook, in which she not only tells of the value of the various timber trees and shrubs, but also calls attention to their fruits and seeds, commonly known as "Mast" for sustaining wild life. Mr. C. F. Delaney, custodian of the state forest at Woodworth, Louisiana, believes that pine mast fed to pheasants substantially stimulates egg production.

Yet, by ax and saw, skidder line and fire, we have so utterly devastated nature's storehouse for the wild folk, that it looks like a map of Georgia drawn by Sherman. Burning off field and forest is about the only thing I know of that is worse than some fool drainage project that is calculated to reclaim the marsh. Brush fires completely destroy everything from the giant timber tree to the peaty, fibrous humus, which may extend several feet below the surface. The moisture holding power of such an area is likely gone forever, since the next rain finding no porous matter to soak up and retain it, must immediately drain off the surface and form gullies by erosion.[8] With no moisture retained in the soil, all springs and creeks must dry up, and the ground become utterly worthless for every purpose. It will not even support ticks and chiggers.

From the foregoing study, one may comprehend at least some of the basic or elementary conditions and requirements for the propagation of upland game birds. By an understanding of these requirements, and an application of these conditions, native game stock can be made abundant at will. Twenty-five years ago there were more wild turkeys in Grant and Rapides, than the number of quail found in these parishes today.

Perpetuation of the varieties native to the country is the only sound basis for game conservation. Economically and naturally, quail and turkeys will always be the easiest game birds to propagate in Louisiana. It is, therefore, wise to direct our attention fundamentally to adequate measures for the conservation of these birds, and for their perpetuation in abundance, commensurate with the carrying power of the land. This is the highest obligation of the Department of Conservation to the sportsmen who annually contribute to its maintenance.

Now, in order to relieve the native game from the stress of overhunting by the ever increasing population, it becomes desirable to add some foreign variety when it can be done successfully, and if it is not a menace to native species, or agricultural interests.

Writing of pheasants in 1927, Farmer's Bulletin No. 1521 has this to say; "Propagation is necessary if the national supply of game is to be maintained. More pheasants are raised by man than any other kind of game bird. Enough has been accomplished in the United States to prove that increase in the extent of successful game farming is limited only by the area, expenditure, and effort devoted to it."

As compared to the well known covey instinct of quail, the ringneck and Mongolian pheasant is rather a solitary forager, and has not proven a menace to native game birds of other varieties, though the cocks fight viciously among themselves at mating time.

Any damage to growing crops, which has been reported as inflicted by pheasants, has been disproven whenever investigated; i. e. South Dakota, Iowa, Illinois, Pennsylvania. The fact is that if man does not marshal to his aid sufficient assistance from birds like quail, pheasants, guineas, and turkeys, he will inevitably loose out in his struggle for existence with his insect enemies. Corsan[9] reports no more insect life available for his birds to feed upon within the enclosure of the W. K. Kellog Game Farm, Battle Creek, Michigan. Delaney reports less damage from insects and plant disease at the state forest nursery since pheasant chicks have been grown there than ever before. There is a nocturnal hemiptera which eats the flowering bud of apple trees and makes it nearly impossible to obtain a setting of fruit here. Many a day we have fed our breeding stock a breakfast of this June Beetle (the honton of our French people) picked up under the street lights the previous night, a lunch of dahlia leaves or lettuce or table scraps, and an evening meal of acorns A good commercialy laying mash was of course available in their feeding hoppers.

Ringneck, Golden, Amhurst pheasants have been grown in Rapides parish for many years by Mr. T. A. Carter for his own pleasure. I once called to see Mr. Carter when he had sixty or seventy half grown pheasants penned under the house to consume termites.

Dr. M. H. Foster of Alexandria, has been a back-yard breeder of Mongolian pheasants since 1925. He reports that the young birds are so greedy about eating boll-weevils that they require frequent inspection and removal of these insects from their throats whenever they become lodged, or attached about the mouth. More stock accumulated than could be carried on the premises, so arrangements were made with the Department for propagation in the state forest. Since 1927 Mr. C. F. Delaney has been in charge of these birds and has proven an able and enthusiastic game farmer, in addition to his other duties as custodian of the state forest.

A small planting was made in the preserve in 1928, and it is known that nesting occurred in the following spring, and some birds observed at various times since. This planting was too small to bring lasting results, unless substantially reinforced. Besides, there has never been any co-ordinated game farming in Louisiana and the pheasants have not been taken seriously. The birds released were merely protected from human hunters, so long as they chose to remain upon the preserve. All the non-human killers pursued them both day and night, without remission.

If a rational policy of game propagation is determined upon, and an able and intelligent custodian like Mr. C. F. *(Continued on page 40)*

Phases of Sedimentation in Gulf Coastal Prairies of Louisiana[1]

R. A. STEINMAYER[2]
New Orleans, Louisiana

INTRODUCTION

THE character, attitude, and distribution of the recent deposits of the Gulf Coastal Prairies of Louisiana vary considerably in different localities, during the same period of time, due to differences in the origin, transportation, and region of deposition, although gradual transition, either from one type environment to another or within the type environment in the same locality during different intervals of time, commonly produces sediments so similar that it is almost impossible to separate them.

The homogeneity of sedimentation, in the area as a whole, seemingly ends with its indefinite products, those alternating beds of gravel, sand, silt, and clay, with their varying amounts of associated organic matter, and it is futile to assign to them definite time or structural limits.

A study of the geology of the recent material of the Gulf Coastal Prairies of Louisiana is, therefore, at present primarily a study of phases of sedimentation, especially with respect to environment.

ABSTRACT

The geology of the recent material of the Gulf Coastal Prairies of Louisiana resolves itself, primarily, into a study of its various phases of sedimentation, especially with respect to its environment phase.

The homogeneity of sedimentation, in the area as a whole, seemingly ends with its indefinite products. It therefore becomes futile to assign to them definite time or structural limits.

The gulf coast sediments and environments are more or less unstable, and if the latter change, the former must undergo alterations to tend toward conditions of greater stability. Some changes are sudden and erratic, others oscillate, but most of them occur slowly and in an orderly manner.

The more characteristic environmental changes occurring in the humid Gulf Coastal Prairies of low relief are changes of the environmental types and changes within the type environments.

Environment is the most important phase of sedimentation of the Gulf Coastal Prairies of Louisiana, and a better understanding and differentiation of its multiple changes and accompanying reactions of its sediments and facies organism will ultimately lead to the integration and subsequent correlation of the sequence of deposition of its material.

PHASES OF SEDIMENTATION

ORIGIN

TERRIGENOUS SEDIMENTS

The terrigenous sediments of Louisiana are derived mainly from the destruction of older igneous and sedimentary rocks in the great Mississippi Basin comprising all or parts of 31 states, or 41 per cent of the area of the United States, extending from the Appalachian range on the east, the Laurentian highlands on the north, and the Cordilleran range on the northwest.

ORGANIC SEDIMENTS

The extensive low, flat, featureless fresh- and salt-water marshes in southern Louisiana, with their luxuriant and rapidly growing vegetation, form ideal conditions for the activity of organisms which either accelerate decay, forming new organic compounds, or assist in the generation of toxic products which arrest biochemical decomposition and preserve some of the original substance.

The rapidity of growth and accumulation of vegetation generally, however, smothers the underlying material by excluding air or aerated water and conserves the toxic products, with the resultant conservation of the raw material.

Recent borings and investigations of the surficial material in the marshes adjacent to Sweet Lake, Cameron Parish, Louisiana, have shown that there is a peat-clay formation approximately 5 feet thick, with a gradual downward transition from peat to peaty clay, the percentage of organic compound decreasing with the depth. That this material has accumulated very rapidly is attested by the complete filling of a former tidal channel 5 feet deep, behind a sheet piling, where it formerly intersected the Sweet Lake Canal. This obstruction was placed there approximately 45 years ago.

Furthermore, organisms, by reacting with chemicals in the water, may bring about depostion of mineral matter from solution, such as calcium carbonate and iron either in the form of a hydroxide, by iron bacteria, or hydrous sulphide, by the reaction of hydrogen sulphide liberated by bacteria, and other minerals.

TRANSPORTATION

More than 500,000,000 tons[3] of eroded material from other states is annually transported by the "great sewer," Mississippi River, alone, and subsequently deposited on the "general dumping grounds of the nation." Along its gulfward margin, tidal and shore currents and wave action perform a significant part in assorting and re-working this material or in the transporting of new material for the building of barriers that ultimately land-lock the gulf waters behind them.

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[1] Read before the American Association of Petroleum Geologists at the New Orleans meeting, March 20, 1930.

[2] Assistant professor and head of the department of geology, Tulane University.

[3] See footnote on page 11.

HAVE YOUR LICENSE AND COMPLY WITH THE LAW

FRESH WATER GAME FISH

Size Limits	Creel Limits
Black Bass (green trout), 10 in. or more	20 daily
Yellow Bass (striped bass), 7 in. or more	25 daily
White Bass (barfish), 7 in. or more	25 daily
Crappie (white perch, speckled perch, sac-a-lait), 7 in. or more	25 daily
Sunfish (perch, bream, goggle-eye, blue-gill), 5 in. or more	100 daily

SALT WATER GAME FISH

	Size Limits
Speckled Sea Trout	12 in. or more
Redfish	16 in. or more
Sheephead	10 in. or more
Flounder	12 in. or more
Hard Shell Crabs	5 in. or more
Soft Shell Crabs	4 in. or more

No Creel Limit.

ANGLING LICENSES

$1.00 License required of all resident anglers fishing for fresh and salt water game fish with rod and reel, artificial baits, spinners, or live natural bait other than worms, grubs, clams, and mussels used on pole and line. Non-residents, $5.00; tourists or transients limited to one week, $1.00. Required of all non-resident anglers fishing for fresh and salt water fish, irrespective of tackle used.

For further information about the Fish Laws, write:

THE DEPARTMENT OF CONSERVATION

124 N. O. Court Bldg., New Orleans

Licenses Must Be Secured From Sheriffs' Offices

LOUISIANA

Let me live in Louisiana, where the lazy bayous flow,
And the haze of Indian summer veils the autum's vivid glow;
Land of silhouettes and shadows, land of oak and cypress trees,
With their mossy festoons swaying in a languorous Southern breeze.

There is magic in the forests that were planted here by God,
Where a canopy of blue is stretched above the fertile sod;
Here it is the flowering dogwoods lift their arms of snowy white
And the glowing little redbuds blossom gaily over night.

Land of love and oleander, land of golden rod and dreams,
Land of fairy water lillies floating down the quiet streams;
Spreading fields of corn and cotton, waving fields of sugar cane
Frame the white washed picturesqueness of the cabins in a lane.

Let me revel in the glory of a Louisiana moon
While I listen to the music of a darky's mournful croon,
For the spell of romance hovers o'er this land of pastel skies,
And the spirit of Acadia gleams in dusky Creole eyes.

GRACE TARLETON AARON,
Natchitoches, La.

The above poem is taken from the Boston Evening Transcript, the literary newspaper of America, whose views as to the quality of verse set a standard throughout the world.

In humid areas, rain wash may, at times, very effectively transport sediments with its sheet waters from one locality to another. In New Orleans and adjacent areas, on Good Friday, 1927, a torrential rain precipitated 14 inches of water in 19 hours, almost inundating the entire city and adjacent areas. Much of this water outside of the city was disposed of as run-off water carrying with it the agitated suspended material to near-by lakes, bayous, and rivers.

Organisms, both plant and animal, not only assist in modifying the sediments, but also assist in displacing them. The elaborate system of levees that ramify throughout the state, the hundreds of millions of dollars that have been spent, and the tens of millions that must annually be appropriated for defensive purposes in Louisiana against the agencies of nature, principally running water, are mute testimony of man's activity

Sediment amounting to 60,000 tons is annually removed from a daily volume of 48,000,000 gallons of Mississippi River water.

Percentage, by weight, of suspended matter in the water—0.0065.

ANNUAL RIVER DISCHARGE

	Second-Feet
Minimum of Upper River	200,000
Maximum of Upper River*	2,000,000
Mean of Upper River	800,000
Minimum at New Orleans	135,000
Maximum at New Orleans	1,360,000

From the foregoing data one may calculate the following.

Annual amount of water taken from the river by the Sewerage and Water Board, 17,520,000,000 gallons or 2,336,000,000 cubic feet.

With a mean discharge of 800,000 second-feet annually, there will be a discharge of 25,228,800,000,000 cubic feet of water near Old River. With this information and the data submitted by Mr. Porter it is comparatively simple to work out by proportion the total amount of sediment transported by the Mississippi past Old River.

60,000 tons: 2,336,000,000 cu. ft. :: X tons : 25,228,800-000,000 cu. ft.

X equals (approx.) 650,000,000 tons

Checking by per cent:

$$\left.\frac{25,228,800,000,000 \times 62.5 \times 0.0065}{2,000}\right\} 510,000,000 \text{ tons}$$

In the foregoing calculations, however, the specific gravity of the material in suspension is considered the same as water, although in reality it is slightly greater.

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[1] The following data were submitted by John L. Porter, chemist for the Sewerage and Water Board, as compiled by him and W. B. Gregory, professor of hydraulic engineering of Tulane University.

*At latitude of Old River, 2,336,000 second-feet (1927 flood confined); at latitude of Old River, 2,650,000 second-feet (1927 flood confined) maximum; from *Spec. Rept. Mississippi River Com.* (November 28, 1927), Table 17, p. 51.

in this work. Other organisms, such as the burrowers (muskrat, crayfish, and earthworms), the borers (sponges, gastropods, pelecypods, and insects), vegetation, principally of the floating type, such as the Red River rafts and the matted water hyacinths, are only a few examples of the organisms that assist man materially in this work.

If we add to the materials displaced by rivers, waves, land creep, rains, organisms, winds, and less important transporting agencies, the material deposited in standing inland bodies of water, the sum of all the material moved, within the state, will exceed 1,000,000,000 tons.

PRINCIPAL ENVIRONMENTS OF SEDIMENTS

The Gulf Coastal sediments and environments are more or less unstable and if the latter change, the former must undergo alterations toward conditions of greater stability. One environmental factor does not change without influencing others. Some changes are sudden and erratic, other oscillate, but most occur slowly and in an orderly manner.

The more characteristic environmental changes are changes of the environmental types and changes within the type environment.

Changes within or from one environmental type to another ordinarily not only modify the sediments but also have a corresponding influence on the organisms that live within them. That such changes have had a marked influence on the ecologic distribution of previous recent life is attested by their records in their sediments. The climatic formations of organisms were either successively blotted out when the factors varied beyond their maximum limit of toleration, or they feebly attempted to migrate through the highways, commonly tidal channels, to a more favorable place where they sought to reach a more harmonious relation with their environment, but generally died in the attempt.

Sediments have been classified by Twenhofel,[1] according to their surroundings, into three environments, namely, continental, mixed continental and marine, and marine. Each of these, in turn, may be subdivided into type environments, to designate the essential characteristics of the former, such as the lacustrine type of continental environment. The type environments having water mediums should be further classified upon the bases of the differences in the composition of their mediums into the fresh-, the brackish-, and the marine-water phases.

The important environments and subdivisions thereof, in the Gulf Coastal Prairies of Louisiana, may be classified as follows:

- Continental environment
  - Fluvial type
  - Lacustrine type
  - Paludal type

- Mixed environment
  - Delta type
  - Marginal lagoon type
  - Littoral type
  - Tidal channel type
  - Embayment type

- Marine environment
  - Neritic type

CONTINENTAL ENVIRONMENT

FLUVIAL TYPE

The fluvial type includes sediments modified and deposited by running water, and, because of the arbitrary separation below the distributaries of Mississippi River, sediments of this type extend into sediments of the delta type of mixed environment, their phasal medium remaining essentially a fresh-water medium, although this is but a relative term and does not imply that the composition of the water is the same at all times. Tides are known to have affected the substratum of Mississippi River as far upstream as New Orleans. The preponderance of the fresh-water deposits, at least of the surficial deposits, in the embayment area, laid down since the contraction and gulfward withdrawal of the transgressing waters to the present gulf shore line, clearly illustrates the importance of the fluvial type of environment in the reclamation of the embayment area.

All of the meandering gulf coastal streams are characterized by marked variations in the stages of their water, and upon this basis they may be classified into two stages, namely, (1) the channel stage, characterizing those sediments deposited within the channel, and (2) the flood-plain stage of those sediments outside of the channel.

Channel stage.—Many disturbing conditions occur in streams that have essentially reached their base level, tending to keep them in unstable equilibrium. Irregularities or obstructions in their channels, however slight, induce oscillation, and, the action being continuous, the effects are cumulative, and the oscillation increases until it reaches a mean between the force of gravity tending to direct the current in a straight line, and the forces of deflection tending to give a direction more or less at right angles to the former. Due to many irregularties, the gulf coastal rivers flow in a series of meanders that bear a definite relation to their volume, gradient, and head; and their axes of greatest velocity alternately cross the stream and commonly set up counter currents.

The preceding generalities, in regard to the behavior of meandering streams that are near their base level, apply mainly to the smaller coastal rivers and may be applicable to the Mississippi during its low-water stages. If the extreme annual differences in the discharge of its waters are taken into consideration, varying from a minimum of 200,000 second feet to a maximum of more than 2,000,000 second-feet (flood-waters confined), one can readily realize that much about its behavior is still unknown and it may be aptly termed the "river of problems." The channel of the Mississippi near New Orleans has a depth of 229 feet, and, what is more extraordinary, the river at that point has double the average cross section. The elevation of the water has varied from 1.6 feet below mean gulf level to 21.2 feet above mean gulf level.

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[1] W. H. Twenhofel, *Treatise on Sedimentation*, National Research Council of the National Academy of Science, Chap. VII.

One of the most important principles of stream sedimentation is that flowing water assorts the débris delivered to it.

Flood-plain stage.—The flood-plain stage of sedimentation is characterized by those deposits laid down in flood waters which have spilled over, broken through, or boiled up behind the levees, during flood stages of the rivers. Generally when these waters spill over or flow through a considerable break of the levees, especially if the land they inundate is poorly drained, featureless, low, and of gentle slope, they quickly lose their initial velocity, deposit the coarser and heavier sediments, and build up ridges near and parallel with the channels, thence spread themselves out, and move over considerable areas as a water sheet or sheets of low competency; consequently they transport, affect, and subsequently deposit only material carried in suspension and solution. The character of the sediments during, and subsequent to, their deposition may be changed directly or indirectly by the associated transported and indigenous organic matter so plentiful in the flood-plain areas.

> It has been estimated that the surplus water of the flood of 1882 could be retained in a reservoir of the size of the state of New Jersey if of a depth of 15 feet.[1]

Flood waters breaking through constricted gaps in the levee, slightly above the distributaries, generally have high velocities and may erode, in a very short period of time, new channels of considerable depths (Nita Crevasse). Such breaks are termed "crevasses" in the gulf coastal terminology.

> The Nita Crevasse which occurred in 1890 reached a discharge of 402 556 second-feet, yet flood stage at Carrollton, about 58 miles below, was lowered only 1.6 feet. The crevasse carried about one-third of the discharge of the entire river.

At the time of the break the crevasse was approximately 600 feet in width by 15 feet in depth, the width rapidly increasing to 3,000 feet.

> The Colorado River, which created such havoc in the Imperial Valley of California, has a maximum discharge of 150,000 second-feet, or about one-third of the Crevasse. The Niagara River, which, with its cataracts and rapids, is one of the wonders of the world, has a normal discharge of about 200,000 second-feet, or one-half of the discharge of the Nita Crevasse.[2]

Deposits laid down in waters of this specialized type are only local in character and can not be separated from those of the channel type.

Sand boils are of little environmental importance, so far as sedimentation is concerned, but from the flood-control point of view they are generally prophetic of breaks in the levees.

The material laid down on the flood plains may be subsequently transported and "piled up" into rectilinear dunes. Lowe[3] states that the loess deposits of the state of Mississippi originated in this manner.

LACUSTRINE TYPE

Innumerable lakes of various modes of origin and development are distributed throughout the coastal prairies of Louisiana and their environments. Those originating within the continental environment were developed principally by surface streams and, like them, in a detailed analysis, could be classified into the same two stages, depending upon whether the sediments were deposited in the cut-off meanders of their channels or in basins on their flood plains. In their incipient formation their waters are fresh and the character of their sediments bears a marked resemblance to that of sediments of the fluvial type from which they originated. During the lake cycle, however, the character of the sediments and the facies type of organisms is modified or altered by dimensional changes in their basins and compositional differences in their mediums and ultimately blends into the paludal type of deposits.

Solution lakes.—In the marshes and on the mounds in southern Louisiana occur here and there small lakes that were devolped principally by ground waters, some of them by the dissolving of the soluble material, leaving basins; others by a collapse of the roof of the underlying solution caverns. The former are comparatively shallow, but the latter may be very deep. The shores of these lakes are very steep. They are dependent upon a renewal of their supply of water either from rain or from springs. Their waters are generally vary saline because they commonly overlie shallow salt domes. The solution lakes on Avery's Island are lakes of this type.

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[1] C. McD. Townsend, "Spillways," *Proc. Louisiana Eng. Soc.*, Vol. II (August, 1925), p. 125.

[2] J. A. Okerson, *Outlets for Reducing Flood Heights* (Mississippi River Commission, 1914), p. 8.

[3] E. N. Lowe, "Loess or Bluff Silt," *Mississippi State Geol. Survey Bull. 14* (1919).

PALUDAL TYPE

Swamps commonly represent only the closing phases of the lake cycle; therefore, it may be impossible to draw a line of demarkation between their sediments. In the continental environment they may originate in a manner similar to lakes or they may be the results of poor drainage, impeded percolation, heavy precipitation, encroaching vegetation, or checked evaporation.

Swamps which originate from the lacustrine type of continental environment are formed chiefly by the filling of lakes with sediments carried to them by the wind, by water, or by the growth of vegetation. In the semi-tropical humid gulf coastal areas, vegetation is the dominant agent.

Like lakes, every phase may be represented in the composition of the water, but the fresh- and brackish- or stagnant water phases predominate. They pass into the marine phase only when their waters are almost entirely evaporated.

Swamps and lakes originating within other environments and eventually surrounded by continental conditions are discussed under their originating environment.

MIXED CONTINENTAL AND MARINE ENVIRONMENT

DELTA TYPE

The land in the lower delta of Mississippi River is advancing into the Gulf of Mexico, it has been estimated, at an average rate of 300 feet per year, although engineers believe this estimate to be applicable only to that part of the delta in front of the jetties; elsewhere, they state, it is considerably less. Furthermore, investigations have shown that, in addition to its normal growth due to the accumulation of sediments, there is a subsidence and a lateral creep of the mass. The subsidence is due principally to the weight of the superimposed delta material, producing a compression of the lower fluid strata. This action is generally noticeable only in areas devoid of overflow, due to the fact that elsewhere the annual accumulation is slightly in excess of its subsidence. E. L. Corthel[1] states:

> Two or three miles above the Head of the Passes was built, many years ago, a pilot's house on brick piers 5 feet high. The ground is now up to the sills of the house, but the surface of the ground bears the same relation to the water surface in the river as when the house was built.

Wells drilled at New Orleans have encountered standing cypress stumps in as many as three successive horizons, at various depths, below the surface. A few years ago, during the drilling of a water well for the Kentucky Alcohol Company at Westwego, Louisiana, a large fragment of carbonized cypress wood, containing oil, was brought to the surface from a depth of 610 feet. This, however, may represent submerged drift wood.

The gulfward creep of the fluid layers of sediment of low specific gravity is evidenced by time variations in the shape and the position of the shoaling deposits in the gulf bottom just off shore. Corthell also says:

> A base line along a solid island at the mouth of Southwest Pass lengthened in a few years by accurate measurement from 700 to 712 feet.

Delta lakes.—The narrow strips of levees and swamp lands that border the various passes commonly join and enclose bodies of the original gulf water in the low space between them, forming lakes, such as the many small lakes between Main Pass and Octave Pass. Blind Bay, between North and Northeast passes, will soon be enclosed and become a lake of this type. Or the delta fingers may extend back and unite with the mainland in a similar manner and form lakes similar to Lake Borgne and Lake Ponchartrain. Before their enclosure, their environment and the composition of their waters are almost identical with those of the bordering delta. After their isolation, however, they pass through a cycle of change of type environment similar to that of those originating from marginal lagoons, and, if they are not obliterated beforehand by a filling process, pass into the continental environment. Lakes originating in a manner similar to the origin of Lake Borgne and Lake Ponchartrain, even after they have passed into their continental environment, may be of considerable size. Lake Ponchartrain, next to the Great Lakes, is the largest fresh-water lake in the United States.

MARGINAL LAGOON TYPE

The series of long narrow sand and shell ridges with intervening marshes and lakes, nearly parallel with the present gulf shore line and extending inland therefrom as far as Lake Charles, are evidence of the environmental history of sedimentation of southwestern Louisiana interwoven about its marginal lagoons and barrier beaches. The mechanics of their formation is familiar to every student of geology.

Origin of Sweet Lake from marginal lagoon.—Sweet Lake, Cameron Parish, a fresh-water lake

(Continued on page 27)

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[1] E. L. Corthell, "Discussion of the Reclamation of the River Delta," *Trans. Amer. Soc. of Civil Eng.*, Vol. 54.

Los Angeles Ordinance Depriving Oil Lessees of Drilling Rights Sustained

Regulation Changing Municipal Policy as to Area in Vicinity of Residential Developments Considered Constitutional Despite Large Expenditures on Project

MARBLEHEAD LAND COMPANY AND STANDARD OIL COMPANY OF CALIFORNIA

v.

CITY OF LOS ANGELES.
Circuit Court of Appeals, Ninth Circuit.

No. 6104.

Appeal from the District Court for the Southern District of California.

OSCAR LAWLER and JAMES E. DEGNAN for appellant Standard Oil Co. of California; M. F. MITCHELL and MARVIN OSBURN for appellant Marblehead Land Co.; EDWIN P. WERNER, City Attorney, and FREDERICK VON SCHRADER, Assistant City Attorney, for appellee.

Before RUDKIN and WILBUR, Circuit Judges, and SAWTELLE, District Judge.

Opinion of the Court

Feb. 16, 1931

WILBUR, Circuit Judge.—Appellants filed a bill in equity to enjoin the appellee from enforcing a zoning ordinance by the terms of which the oil-well drilling operations of the appellants were declared illegal in the zone wherein the land owned by the appellants, Marblehead Land Company, is located. This land is leased by the appellant, Standard Oil Company of California, under a lease which provides for the sinking of oil wells upon said property, and, if oil is found thereon, provides for the production of oil therefrom.

Appellants concede that since the decision of the Supreme Court in Euclid v. Ambler Realty Co., 272 U. S. 365, the appellee city has power to enact a zoning ordinance. The right of the City of Los Angeles so to do was recognized and upheld by the Supreme Court in Zahn v. Board of Public Works, 274 U. S. 325.

ORDER CLAIMED UNREASONABLE EXERCISE OF POLICE POWER

APPELLANTS, however, contend that the situation as disclosed by the evidence shows that the attempted exercise of police power in the given instance is so unreasonable and arbitrary an exercise of that power that the ordinance should be declared void by the court as an infringement upon the constitutional rights of the appellants in that their property is thus taken from them without due process of law. In support of their claim that the ordinance is unreasonable appellants rely upon certain uncontroverted facts:

Appellants' land lies about seven miles distant from the heart of the City of Los Angeles, at Seventh and Broadway. Appellant Marblehead Land Company's property contains about 291 acres and the Standard Oil Company lease covers approximately 396 acres, including the land of the Marblehead Land Company. This land has heretofore been used for farming operations, but it is now believed has possibilities as oil land. An oil derrick has been erected thereon for the purpose of determining and developing its possibilities as oil land.

Several tracts of land in which the streets have been improved and upon which expensive residences have been and are being developed are in the vicinity of appellants' land. Three golf courses abut on the land. The nearest dwelling house on one of the tracts of land to the drilling rig erected upon appellants' land is 1,100 feet. Appellants' land for residence purposes is worth about $10,000 per acre. If oil is discovered thereon the value of the oil produced therefrom, according to the opinion of experts based upon oil-producing lands upon the same or similar geological structures would be many millions of dollars.

The Standard Oil Company paid the Marblehead Land Company $65,000 in cash for said oil lease, and in addition thereto has made expenditures in connection with the proposed drilling operations aggregating in all $136,000. The lease was obtained and the operations begun after the enactment of an ordinance which will hereinafter be referred to, excluding a portion of the appellants' lands from the residential district or zone.

EVIDENCE AS TO EFFECT ON PROPERTY OF DRILLING

Upon the trial evidence was adduced as to the effect upon property in the neighborhood of the proposed drilling operations. This evidence consisted of photographs showing the condition of appellants' property and of the surrounding areas devoted to residence purposes, the character of buildings erected thereon, and the effect upon the value of the property subdivided for residence purposes, of the proposed drilling operations; and in addition certain evidence was offered to show the extent of the fire hazard resulting from such operations and the effect of releasing natural gases which was reasonably to be anticipated from successful drilling operations. On the question of fire hazard one of the appellants' witnesses, R. H. Morrison, testified as follows: "* * * that there is a slight fire hazard in putting down a test well, but such hazard results from lack of foresight and carelessness on the part of the driller and that fire can be prevented by keeping the hole full of rotary mud and weighting the mud by chemical compounds, such as barytes, which prevents the escape of gas and prevents the ignition by sparks resulting from friction of the rotary, and also exercising the precaution of moving the boiler back from the well when nearing completion of the hole to prevent the ignition of a small amount of gas which may escape; that there is practically no danger from ignition resulting from the use of electricity about a derrick; that the Oil Company has had no fire around a derrick in the last two or three years."

The witness, L. Z. Johnson, called by the appellee, testified:

"* * * that danger of fire occurs in bringing in new wells, from fire under the boilers or high gas pressure in the well and friction of the rock running through the casing causing sparks; that if the well should run wild, it would result in the destruction of the property, and that this does occur; that in drilling a given area of approximately five acres, one well to three acres would be sufficient; that considerable noise results from drilling test wells, and from the steam lowering and lifting tools; that it is customary to drill day and night, and that oil fumes result from such activities but that the fumes can be shut off by the operators if they are prepared for it; that dust results from the trucks running back and forth to the well, and that it is customary in drilling near dwellings to oil such roads and that oil considerably prevents the raising of dust."

COURT'S FINDINGS OF FACT PRESENTED

The court made findings of fact upon the issues and with reference to the effect of drilling operations upon the surrounding property found the facts to be as follows:

"* * * that the said property of plaintiffs is already partially surrounded by residential developments, including some very high class and expensive residences located within the tracts or subdivisions nearby which have been highly improved with streets, curbs, sidewalks, lights and other utilities; that neither plaintiffs' said property nor any of the immediately adjacent property is of an industrial character, nor devoted to such uses; that it is problematical whether or not there is any oil, gas or other hydrocarbon substances located beneath the surface of plaintiffs' property in commercially paying quantities; that no oil, gas or hydrocarbon wells have ever been developed, operated or maintained on plaintiffs' said property.

"That the operation or maintenance of oil wells on plaintiffs' said property or the drilling for or prospecting for oil on said property would cause the atmosphere in the said district surrounding plaintiffs' said property to become contaminated and polluted with obnoxious fumes and odors; that these obnoxious odors would cause serious discomfort, damage and inconvenience to the owners of the property surrounding plaintiffs' said property and would make living conditions on said properties less desirable and would cause the value of the said surrounding property to greatly depreciate; that the maintenance or operation of oil wells on plaintiffs' said property or the drilling or prospecting for oil, gas or other hydrocarbons on said property would produce noises which would be obnoxious to persons owning property near to or surrounding plantiffs' said property in that the said noises would make living conditions on such surrounding or nearby property to be much less desirable and would greatly reduce the value of the said surrounding property;

"That the drilling for oil, gas or other hydrocarbon substances on plantiffs' said property or the maintenance of oil wells and the operation of the same on plaintiffs' said property would create a fire hazard which would be imminent at all times during the operation, maintenance or drilling of the said wells for the purpose of extracting oils, gas or other hydrocarbon substances, in that there would be great danger of such oil wells catching on fire during such drilling operation and that such imminent fire hazard would cause the property surrounding, nearby or adjacent to plaintiff's said property to become less desirable for residential purposes and would greatly depreciate the value of the said surrounding or adjacent property; that the operation or maintenance of oil wells on the plaintiffs' said property or the drilling of said oil wells on plaintiffs' said property would constitute a nuisance and is not an enterprise or pursuit suitable to be carried on on the plaintiffs' said property.

"That the plaintiffs' said property and the property surrounding and adjacent thereto is rolling and contains attractive and beautiful inclines and declines which greatly add to the residential character of the plaintiffs' said property and the surrounding property, and cause the same to be extremely suitable and adaptable for residential purposes and landscaping in connection therewith; that the location of oil derricks and oil tanks in the center of such a district would cause the attractive appearance of the said property to be destroyed and would cause the whole of the surrounding territory to become unsightly and ugly in appearance; that it is impossible to drill for oil and to operate oil wells on plaintiffs' said property or to extract oils, gas or other hydrocarbon substances from plantiffs' said property without using in connection therewith tall and unsightly oil derricks and without using in connection therewith power other than animal power; that the power necessary to be used in connection with all of these drilling operations or the maintenance of the wells for the purposes hereinabove set forth would require apparatus for the generation of such power and that the amount of power to be generated by each of such apparatus for the drilling of any oil well or wells for the purpose of extracting gases, oil or hydrocarbon substances would be greater than five horsepower."

OIL BEARING QUALITY OF LAND PRESUMED

Appellants also introduced experts to sustain their contention that their land was oil-bearing land. The defendants introduced evidence of experts tending to show that it was not oil land and in that connection showed that three oil wells had been drilled in that neighborhood to a depth of over 4,000 feet each without striking oil. The case, however, must be disposed of on the theory that appellants' land is oil bearing land and that the ordinance preventing the appellants from drilling operations thereon has in effect destroyed the value of said property as oil land.

Assuming for the moment that the facts are correctly determined by the trial court, the right of the appellee city to pass the ordinance in question need not be confined to the more recently developed phase of police power involved in zoning ordinances which undertake in a measure to direct the future growth of the city, but may also be predicated upon the power of the city to protect its inhabitants from fire hazard and from noxious gases, that is to say, the power exercised by the city authorities in enacting the ordinance may be based upon that branch of the police power which deals with the public safety.

It can not be doubted under the authorities that if there is a menace to the health and property of its citizens from the proposed drilling operations that under the police power as long established and exercised, the ordinance would be a valid exercise of such police power. (See cases cited in Masonic Cemetery Assn. v. Gammage, 38 F. (2d) 950, 956.)

The second branch of the police power upon which the ordinance in question may be based, is that more recently developed phase of the police power which in the interests of the general welfare permits a city to so limit the class of structures which can be erected and the kind of business which can be maintained within various areas or zones as to regulate and control the future growth and development of the city.

The zoning ordinance as such looks largely to the future development of the city rather than to a protection of a pre-existing status. With reference to the power of the City Council of Los Angeles to enact a zoning ordinance there would seem to be little doubt that in the interests of such future growth of the city and in order to regulate that growth it is competent for city authorities to determine that vacant land may be included in a residence district and when so included that structures other than those authorized by the ordinance can not be erected thereon even though the owner so desires and the erection of such structures or the maintenance of a forbidden, but otherwise legal business therein, might be more profitable to the owner than the use of such property for residence purposes.

This was established by the decision of the Supreme Court in Zahn v. Board of Public Works, supra, sustaining the decision of the Supreme Court of the State of California in 195 Cal. 497. citing Miller v. Board of Public Works, 195 Cal. 477. It appears from the opinion in these cases and from the record the land owned by the appellant and in the neighborhood thereof was vacant at the time of the enactment of the zoning ordinance which limited the class of buildings which could be erected thereon.

It was claimed by the appellants in that case that their land adjoined Wilshire Boulevard, "a main artery of travel through and beyond the city, and that the operator of the underlying coal land is distant more than 150 feet from any improved property belonging to any other person."

While this decision deals with the right of an owner to develop its inherent potentialities by producing therefrom its mineral wealth, there does not seem to be any distinction in principle between depriving an owner of the right to develop such inherent qualities of the land and a regulation which prohibits an owner from erecting upon his land structures which he believes

(Continued on page 30)

Prevention of Forest Fires -

Commissioner Outlines Minnesota's Program

By G. M. GONZET
Commissioner of Forestry, State of Minnesota

THE AIM and program of the Minnesota State Forest Service in forest fire protection is to protect our forests to such a degree as to make them an insurable risk at a reasonable rate. Our concrete objective is to reduce the permissible burned-over area annually to one-tenth of 1 per cent of the area protected on State forests, auxiliary forests and lands definitely set aside or protected for timber production, and four-tenths of 1 per cent for the general lands through the north, not including grass lands and meadows.

We have quite definite plans as to how this can be carried out. The estimated cost for such a program and such a degree of protection will amount to 3 cents per acre per year. Before outlining any program or methods of protection, the causes of our fires and the hazards of the north woods should probably first be discussed.

The greatest annual causes of fires are agricultural pursuits. By grouping land clearing, tractors, meadow burning, burning old stack bottoms, burning out yellow jackets' and hornets' nests, and mosquito smudges, it will put the agricultural hazard far higher than anything else.

Prior to the 1927 legislative session, brook trout season in the northeastern counties opened April 15 the same as other places. Up until that time our most expensive and damaging fires were along trout streams. As high as 60 per cent of the fires in the district and 90 per cent of the expense and damage were of trout fisherman origin. The 1927 session of the legislature postponed the opening of the trout season to May 25 and the last three seasons we have had but one fire in Cook and eastern Lake counties prior to the first Sunday after the opening of the trout season. Following those dates fires occur quite regularly on trout streams.

Fires of railroad origin used to run about 20 to 25 per cent of the total causes, but they have put on a very intensive fire patrol as well as thorough rebuilding of spark arresting devices on their locomotives, so that they now have reduced their fires to 8 or 10 per cent of the total causes. Besides reducing the number of fires, their patrol of trains has reduced the area burned and the damage caused to the point where it is second lowest of any other single classified cause.

The greatest losses from forest fires in this State have been in human lives and buildings, fences and other improvements, young growth or reproduction, cut forest products, soil and watershed protection. As a rule, merchantable pine timber has not suffered seriously in the past and ordinarily does not become more than a 75 to 90 per cent loss in any forest fire. Fire-killed spruce timber is a total loss as far as pulp is concerned, because when it is once charred it cannot be used in paper making, but there is a certain salvage value for lath and box material. Burned cedar is largely a total loss, because the buyers of cedar are afraid that it has been weakened in the killing.

The principal work and duties of the State Forest Service and the ranger force have always been in the past and still is today primarily that of saving settlers' lives and property, such as hay, fences, and buildings. In this we feel that we have done a real creditable job, considering the chance that the department has had.

Our protection force and support is not yet ample to properly protect the forest growth of the State. Too many settlers permit fires to smolder and burn without reporting them. However, as soon as their hay and fences and buildings are threatened by these fires getting away, they expect the ranger to come rushing out and save them. After the immediate danger is over around his own premises what happens to the fire from then on is often of no greaat consequence to him.

Too much feeling exists in the timbered country that it should all be opened up to farms and that the more and cleaner it is burned over the sooner settlers will flock in and start farming it. The agricultural depression over the last several years has discouraged some people in this idea, but there still is a very broadcast feeling that all forest fires are beneficial.

The forest protection methods in this State are built up through a definite system which is largely the same as is used by the United States Forest Service and a large number of States and provinces in North America. The State is divided into 18 districts, each in charge of a forest ranger.

The fire protection work of the forest ranger might be divided into three classes: Prevention, detection and suppression. Prevention is brought about through public relation work, meeting with the farmers and explaining forest laws and methods of fire preven- *(Continued on page 28)*

Extent of West Virginia's Forests

By H. S. NEWINS
State Forester, State of West Virginia

Reasons for Reduction in State's Wooded Area

WEST VIRGINIA may well be termed the "Mountain State" because of her vast physical resources of forestry, coal, gas, oil, and minerals, which have been the incentive to those thrifty pioneers and their successors, who have surmounted the barriers and obstacles that have seemed to block the development of these necessities of industry and recreation.

During the early history of the United States the 15,000,000 acres of land which are now included in the State of West Virginia were largely considered as a veritable forest, the very fastness of which must remain unbroken almost indefinitely because of the formidable mountains, which included this forest land.

Then followed the advance of colonization westward and later the development of modern machinery, which immediately made more available the forest resources of the whole United States, which had previously seemed to be inaccessible.

In West Virginia the logging was first practiced along the main streams, which by this manner became arteries of commerce in forest products, and many sawmills were established which were bustling with industry. The extension of railroads and the introduction of the band sawmill in West Virginia increased to a considerable extent the appetite of the lumber industry for the "soft textured" Appalachian hardwoods and the spruce and hemlock which are native to this State, and thus the industry pushed on into the heart of these virgin forests to supply this new demand.

This has continued until today it has been estimated that there are now less than 500,000 acres of the original uncut forest in this mountain State of 9,000,000 acres of potential forest land. Already many of these cutover forests have been revisited with portable sawmill outfits which have removed such growing stock as was overlooked in the original "cut" together with any increment which may have accrued in the meanwhile. Because of their disconcerting effect upon future forestry practices these portable sawmills are frequently referred to as "bootleg" or "shoestring" outfits.

The intensive development of the highway road system in West Virginia which is well under way has already penetrated the forest regions of the State which were at one time so impregnable, and now the tourist as he travels these trunk highways and lesser byways can view the ever changing vistas of West Virginia's mountain scenery and can be thrilled with the traditions of Indian and pioneer lore which have so recently been a part of the history of the State.

This progress of civilization has not proceeded, however, without great sacrifice of the heritage of forest which nature had endowed to the State of West Virginia. The advent of the white man broke the stillness of the forest and the woods have since resounded with the sound of the axe. The ecological balance previously preserved by nature was disturbed. Foreign insects and diseases have followed in the wake of the cuttings. The spruce forests of the State which were originally 1,500 000 acres in extent suffered severe losses in 1880-89 from the attacks of beetles.

The chestnut blight which was first observed in the United States in 1904-05 is now completing its destruction to the commercial stands of chestnut in the State. West Virginia has been the proud leader since 1907 of all the States in the production of chestnut, and in 1913 reached a peak production of 136,000,000 board feet.

During all of this period there has been a continuous income in the State of money derived from the lumber industry. The production of all lumber has been steadily maintained above 1,000,000,000 board feet per year and as much as 1,500,000,000 board feet has been produced in a single year.

But what is in store for the future of West Virginia now that the State faces the depletion of this original stand of timber which had seemed during pioneer days to be almost inexhaustible? The commercial chestnut will be a matter of history only by the year 1940, when it is estimated all remaining commercial chestnut in the United States will have been killed by the prevailing chestnut blight disease.

And yet nature will replenish these stands with an abundance of other hardwood species to take the place of the chestnut. In fact the climatic conditions of West Virginia, combined with the atmospheric and soil factors, are so favorable as to warrant an abundant reproduction of the natural forest species, provided these forest lands are adequately protected from fire. Fire is the greatest single enemy

(Continued on page 26)

Addition to Yellowstone Park of National Forest Tract Urged

Transfer of 52,480 Acres of Teton National Forest is Only Change Urged by Boundary Commission

ADDITION to the Yellowstone National Park of 82 square miles, or 52,480 acres, taken from the Teton National Forest, and retention without change of other tracts which had been proposed for transfer in both the park and forest are recommended in the annual report of the Yellowstone National Park Boundary Commission, made public April 3 by Representative Smith (Rep.), of Twin Falls, Idaho.

The report, with which Mr. Smith said he does not entirely agree, came to Congress during the last session, was immediately referred in the House to the Committee on Public Lands, of which Mr. Smith is a member, and the final proofs are being revised for its issuance as a public document (H. Doc. 710, 71st Cong., 3rd sess.).

In a minority report, Charles H. Ramsdell, a member, said the majority report in recommending the proposed addition would divide a valley and basin unit, "part to be hunted and part to be under national park protection," adding that the so-called "C and D areas" should be adopted as a whole, in accordance with recommendations of a co-ordinating commission in 1925.

ORIGINAL BOUNDARIES

The Yellowstone Park was created by Congress in 1872 and, the report says, the boundaries were arbitrarily drawn to assure the inclusion of Yellowstone Lake, the Grand Canyon of the Yellowstone River, the Mammoth Hot Springs, and the geyser basins in the west and south central parts of the park. The boundaries remained unchanged until 1929. Meantime in 1905 the Legislature of Wyoming passed an act creating the first State game refuge immediately south of the Yellowstone Park—the 500,000-acre Teton State Game Preserve, embracing in general a region which had been proposed to Congress for an addition to the park.

Because of this State preserve, the report said, the elk have been given sanctuary for 25 years on a fine summer and early fall range, though adequate winter range remains a serious problem. A Federal coordinating commission on national parks and national forests in 1925 recommended creation of the Teton National Park, the addition of the upper Yellowstone and Thorofare region to the southeast corner of the Yellowstone Park and minor changes in other boundaries to follow natural topography.

TRANSFER FROM FOREST

Congress created the Teton National Park but took no action changing the southeast and south boundaries of the park. Opposition developed to the southeast extension of the Yellowstone Park and the present Commission was created to inspect and report on proposed adjustments in the south, southeast, and southwest boundaries of the park.

The summary and conclusions of the majority report follows:

Yellowstone National Park and adjacent Teton National Forest.

I. Southeast boundary, upper Yellowstone-Thorofare region (areas C and D).

Proposed: By the Co-ordinating Commission on National Parks and Forests (1925) as an addition to the Yellowstone National Park by elimination from the Teton National Forest. Area approximately 340 square miles, or 217,600 acres.

Recommended: Area C 82 square miles, or 52,480 acres, for addition to the Yellowstone National Park by elimination from the Teton National Forest. Area D 258 square miles, or 165,120 acres, be retained within the Teton National Forest.

II. South boundary, Snake River region (areas A and B).

Proposed: By the Coordinating Commission on National Parks and Forests (1925) as an addition to the Teton National Forest by elimination from the Yellowstone National Park. Area approximately 40 square miles, or 25,600 acres.

Recommended: Be retained, for the present, within the Yellowstone National Park.

III. Southwest boundary, Bechler River meadows region (area E).

Proposed: By the Fremont-Madison Reservoir Co., an organization of farmers in the vicinity of Ashton, Idaho, as an elimination from the Yellowstone National Park. Total area approximately 27 square miles, or 17,280 acres. Area of proposed reservoir site, 5,700 to 12,600 acres.

Recommended: Be retained within the Yellowstone National Park. Teton River Basin suggested as an alternative reservoir site.

Conclusions: (In his signature to the report as a whole Commissioner Ramsdell concurs with the several conclusions except those pertaining to areas C and D. He submits a minority report for area D and a dissenting opinion for area C.)

I. Southeast boundary, upper Yellowstone-Thorofare region (areas C and D).

(a) That area C, embracing approximately 82 square miles, or 52,480 acres, be included in the Yellowstone National Park by elimination from the Teton National Forest, and to be bounded as follows: Beginning at the present southeast corner of the park, thence southerly along the line of the east boundary of the park extended, to the southerly bank of the Yellowstone River; thence south 45 degrees west to the Continental Divide; thence northwesterly along the Continental Divide to the south boundary of the park between mileposts 33 and 34; thence easterly along the south boundary of the park to the point of beginning.

This area should be added to the Yellowstone National Park in recognition of the outstanding national park quality and exceptional scenic beauty of the Bridger Lake Meadows and immediately surrounding bold escarpments of Hawk's Nest, and Trident and Thorofare, and Two Ocean Plateaus; and of the exhibit of moose in natural and undisturbed environment.

WOULD PROVIDE ADDITIONAL SANCTUARY FOR MOOSE

This addition will include the very finest scenic area of the whole Upper Yellowstone Valley, meeting in every respect the most exacting interpretation of national park standards; and will, moreover, provide additional sanctuary for the moose, in fact the best of the range, and in an area where this animal concentrates. It embraces, too, the point of diversion of the routes of migration of the elk.

(b) That a clause be incorporated in the act of Congress which may authorize the recommended addition of area C to the Yellowstone National Park, to read in substances as follows:

Provided, that it is the purpose and intent of Congress to retain in its original wilderness character the drainage area of the main waters of the Upper Yellowstone River included within the park, therefore no new roads shall be constructed and no hotels or permanent camps shall be authorized nor permitted to be maintained on such lands or the areas hereby added to the park; except that a road or other essential improvements may be constructed around Yellowstone Lake.

(c) That part of the Yellowstone-Thorofare drainage now within the Teton National Forest (area D, embracing approximately 258 square miles or 165,120 acres) lying east of the east boundary of Yellowstone Park, extended, is of national park quality. Its topography makes it more easily accessible from the park than from other directions, and if there were not specific reasons for leaving it out of the park, its inclusion would be appropriate.

The economic values of recreation and opportunities for free enjoyment of the wilderness resources of this region for hunting, fishing, camping, and wild-life photography, as made available under the administration of wilderness areas by the Forest Service, are appreciated. The commission, too, expresses confidence that the State of Wyoming will maintain the wild-life resources of this region, which are of national interest, through sound measures of game administration.

PRESERVATION RECOMMENDED OF WILDERNESS ASPECTS

The commission therefore recommends that the National Forest Service formally established this portion of the Teton National Forest as a wilderness area in which no roads nor permanent human habitations shall be established, and that the nonuse of this territory for grazing be continued.

(NOTE—Commissioner Ramsdell does not concur with the conclusions for areas C and D as expressed in paragraphs (a), (b) and (c), and presents a minority report for areas C and D and dissenting opinion for area C, alone.)

(d) The continued assignment of a biologist by the Secretary of Agriculture, of the type of Dr. O. J. Murie, to study the elk and moose of the Upper Yellowstone region and adjacent areas; the determination of their routes of migration or distribution, their numbers and need of management, looking to their preservation and maintenance as an exhibit of wild life of unusual interest.

II. South Boundary, Snake River region (areas A and B, Map Exhibit I).

(NOTE—These areas were proposed for elimination from the Yellowstone National Park and their addition to the Teton National Forest by the Coordinating Commission on National Parks and Forests in 1925 in order that a practical administrative line might be established between the Yellowstone Park and the adjoining Teton National Forest. The question here is wholly one of interdepartmental origin, and now is confined to area A (approximately 8,000 acres), for the Park Service and the Forest Service are in agreement that area B should not be eliminated because the trail which parallels the south boundary of area B, and used jointly by both services, affords the most practical administrative boundary.-

(a) That pending further consideration of the status of lands in the region of area A this

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Louisiana Conservation Review

A monthly publication devoted to the dissemination of news and in the interest of the conservation of game, fish, and other wild life, forests, and minerals.

Distributed free by the Department of Conservation to anyone interested in the protection and utilization of the State's Natural resources.

ROB'T S. MAESTRI, *Commissioner*
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VOL. I. MAY, 1931 NO. 8

EDITORIAL

1930 Annual

THE April issue of the *Louisiana Conservation Review* contained a brief review of the major activities of the Louisiana Department of Conservation during the year 1930. An effort was made to relieve the monotony of the customary official reports describing the Department's functions in a popular style, and by the insertion of illustrated views and personal photographs, we hoped that some of our readers might thus read a few lines of statistics besides glancing at the pictures.

We are grateful for the following comment reproduced from the *Shreveport Times*, in the issue of April 10, 1931:

"OUR CONSERVATION INTERESTS

"The Annual Review of the Louisiana Conservation Commission, which has just reached us, reveals an interesting story of unusual accomplishment. It is only on rare occasions, when one has an opportunity to study the reports of those who are charged with administering the affairs of the Conservation Department, that he is placed in a position to appreciate the magnitude of our natural resources.

"Running the Conservation Department of Louisiana is no easy task. It embraces vast mineral deposits; wild bird and animal life; forest preserves; fish and oysters. Administration of these various natural riches includes law enforcement, educational endeavor, research work, fire protection, engineering and surveying, promotional and publicity work, trapping regulations.

"Indeed, the Conservation Commission of Louisiana may be likened to a gigantic public corporation with many coordinating branches. The value of the State's natural resources is almost incomputable, since many of them are constantly increasing. This is particularly true of the fur-bearing animals, which are populating the marshes of Louisiana at such a rate that it is impossible to even guess at their material value.

"So vast are our natural resources and so important a factor of commerce and industry have they become, that it requires a very high order of administrative ability to successfully conduct them. When the present commissioner, Mr. Robert Maestri, took charge of the Conservation Department, there were some misgivings, which we shared, concerning the immediate future of that branch of the public service. But, Mr. Maestri seems to have agreeably disappointed those who doubted both his native ability and earnestness of purpose. Judged by the results disclosed in the Annual Review to which we referred, Mr. Maestri has made good as Conservation Commissioner.

"It is impossible to give here more than a brief summary of what the Review discloses. An important feature is that it shows a healthy balance in the bank account of practically every division of the Department. Deficits were once the rule rather than the exception in the Conservation Commission. That appears to be no longer the case.

"Many fish hatcheries and game preserves have been provided for during the past year. Greater protection and more development have marked the oyster and shrimp resources. This includes proper collection of severance taxes on exported Louisiana oysters and shrimp, canned in other states. There has been systematic and effective enforcement of game and fish laws. The year's work in the Forest Division is declared to be 'distinctive because of accomplishments in practical and successful reforestation.' Among the achievements of the Minerals Division is correction of the unlawful practice of 'by-passing gas around meters,' by which the State was cheated. This Division, it is claimed, also aided materially in oil and gas development by the adoption of a constructive program of control.

"It would be well worth the time and trouble of every Louisiana taxpayer to read the first Annual Review of the Louisiana Conservation Commission. It will demonstrate that we are the possessors of immense natural riches, and that they are being ably, economically and profitably administered."

Fur Shortage Feared From Lack of Laws Regulating Trappers

A SHORTAGE of fur will result from the slaughter of fur-bearing animals if States do not pass laws regulating activities of trappers, the Bureau of Biological Survey declares in a bulletin entitled "Fur Laws For the Season 1930-31," issued Nov. 18 by the Department of Agriculture.

Stating there has been a general trend of legislation to protect fur-bearing animals, the bulletin urges the various States to adopt uniform regulations for licensing trappers and for requiring reports to aid State conservation of the fur trade.

Further information made available by the Bureau follows:

A digest of the fur laws of all the States and of Canada, Newfoundland and Mexico, including such restrictions as seasons, bag limits, prohibited trapping methods, and licenses, and information on possession and sale of animals and furs, shipment and export, propagation, and bounties, is presented in this bulletin. It is the sixteenth annual summary of its kind compiled by the Bureau.

Legislatures of six States (Kentucky, Maine, Massachusetts, Mississippi, Rhode Island, and Virginia) enacted laws directly affecting fur-bearing animals since last year's bulletin on the fur laws was issued. In several other States changes in fur laws were made by regulations or by order of administrative officials. The general trend of the legislation has been to increase protection afforded fur-bearing animals, though there has been some liberalization in the trapping restrictions locally.

Something can be done through changing open seasons on certain species, by completely closing the season on those most seriously affected, and by adopting such other measures as would tend to prevent the killing off of the fur bearers faster than they are produced. Prescribing a seasonal limit on the number of any species that might be taken would be an effective remedy if applied to fur bearers other than those raised in captivity on fur farms.

It is essential to effective administration of the fur resources that State officials charged with the execution of fur laws have definite information regarding the number of fur animals taken in the respective States each season. Many States require licensed trappers to submit a report of the number of each species taken annually by them. Of 31 States that do not prescribe such reports by trappers, seven do require fur dealers or buyers to report on their transactions. Though universal application of this requirement would not disclose the number of fur animals actually taken in any one State, because of the fact that in practically all States residents may trap on their own lands without a license, it would give comparative figures on the relative number taken annually. A summary of such reports containing comparable data would furnish most valuable statistical information for economic studies of the fur situation in the entire country, as well as for the framing of legislation to control the annual take.

If the several States would adopt uniform regulations for the licensing of trappers and the rendering of reports by them, the information resulting would be helpful to the individual State conservation departments and to the fur trade of the entire country.

The bulletin may be obtained free from the Office of Information, Department of Agriculture, Washington, as long as there is a supply available for free distribution.

Program to Extend Market for "Certified" Lumber is Proposed

THE program of the Bureau of Standards to increase use of Federal specifications covering a wide range of products is soon to be advanced with respect to lumber, when 31,000 persons in charge of purchases for Federal, State, county and municipal agencies and individual public institutions will be supplied with information now being compiled, A. S. McAllister, Assistant Director of the Bureau, stated orally April 8.

The purchasing agents will receive names of hundreds of manufacturers, wholesalers, and retailers who have expressed willingness to guarantee provision of hardwood or softwood complying with recently revised specifications drafted under the sponsorship of the Federal Specifications Board. It is expected this information will be forwarded before next July, Mr. McAllister stated.

The activity is a part of the Board's certification plan, designed to obtain broadest possible use and effectiveness of Federal specifications, now 698 in number and relating to a wide range of products, it was explained. Additional information made available by Mr. McAllister follows:

"CERTIFYING" OF PRODUCTS

The Bureau of Standards serves as a testing agency for the various departments of the Federal Government, and as such is assisting in placing the Government purchases upon an economical and businesslike basis. In supplying purchasers with lists of manufacturers and distributers willing to guarantee compliance with nationally recognized specifications, impetus is given to popularization of use of the specifications. Certain

(Continued on Page 44)

Purchase of Fishing Grounds by State Urged in Colorado

By R. G. PARVIN
Game and Fish Commissioner, Stote of Colorado

Advantages Which Such a Plan Would Bring To Both Fishermen and Private Landowners Are Outlined by Commissioner.

IT IS HARD for any of us to give up privileges we have always enjoyed. Particularly hard when such privileges give us great pleasure and harm no one.

It used to be that fishermen were free to wander at will in pursuit of their harmless pastime and no one took any notice of them. The world's meanest man would have been marked by posting his land against fishing. He is yet, to some extent, but conditions have changed with them and manners have changed with them. There is nothing to do but make the best of it.

If landowners choose to deny fishermen the privilege of crossing their land, even if the fisherman stays in the bed of the stream and does not step a foot on the land at either side, the supreme law of Colorado upholds them in their right to do so. This right makes it possible for landowners, when they are so disposed, to exclude the public entirely from their land, or charge a fee for entering upon it for fishing or for any purpose they may see fit. The fish in the streams are free for the taking because the State provides them, but the State cannot provide places to fish under existing conditions.

The suggestion has frequently been made by the State Game and Fish Commissioner that Colorado itself should secure ownership or control of desirable streams and reservoirs for the free use of the public to fish and hunt. Duck shooting privileges are becoming more restricted than fishing, and many of the large reservoir and irrigation companies would be willing to enter into long term contracts with the State whereby their lakes and reservoirs could be thrown open to the public for duck shooting. The stream mileage should be owned outright and while this plan entails large investment, it is the only practical way to secure satisfactory results.

There has been a good deal of talk about the "rich man" buying up fishing streams for the exclusive use of himself and his friends, but this is not being done to any alarming extent at present. There is nothing to prevent its being done, and in all probability it will be done as Colorado continues to grow in favor with the recreation seeker as a fishing resort.

Just how the Game and Fish Department or any other agency is going to dictate the terms of sale of private property is not easy to see. The landowner naturally will sell his land for whatever purpose it is wanted if he wants to sell and can get his price. We can buy it ourselves if we have the money, and an appropriation of say $100,000 a year for 10 years for this purpose, while desirable places are available, would be one of the best investments the State could make.

The Game and Fish Department has reached a point where it can put all the trout in the streams and lakes that waters and food conditions will permit. With millions of good sized healthy, fine trout being turned into the streams every year, it is reasonable to expect that fishing will continue to improve and the tourist and resort business improve along with it.

We should be glad we can attract a wealthy class of people to the State for fishing or for anything else, as they add a good deal to the general prosperity. The Game and Fish Department has encouraged private clubs, organizations and individuals in establishing fishing preserves and spending their money. In several instances private clubs have been a valuable help in improving fishing in the entire course of the stream on which the club is situated. The State could not possibly afford to spend the amount of money in any one locality that these clubs spend in building rearing ponds, feeding and caring for large numbers of fish which are released in the river.

The public is prohibited from fishing in that part of the river bounded by the club holdings, but the fish released from the ponds migrate both up and down stream, and in consequence, fishing is excellent everywhere along the river. The members of the clubs take pride in keeping the river well stocked for the public as well as for themselves, and go to a good deal of extra expense to do so.

In the last 10 years, according to Government estimate, the number of people who hunt and fiish for pleasure has increased 400 per cent. This is one reason for the growing restriction of private property privileges. Aside from the natural

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PICTURES OF WHITETAILS

(Continued from page 5)

in the summer forest I shall not be discontent, remembering that visit to the old cabin in the north woods.

The most beautiful picture I have of a deer, however, is one that is not recorded on any sensitive plate or film, one that cannot be reproduced in tones of black and white on photographic paper. I sat with Walter Hastings one night on the shores of a little forest-flanked lake in the Two-Heart country of northern Michigan, on the south shore of Lake Superior. We were in quest of beaver pictures. It was September and the harvest season was at hand for these engineers of the forest. We had waited in a blind near the beaver dam at the foot of the lake until sundown, hoping to catch some member of the colony at its early evening tasks. But the light was no longer strong enough for pictures.

A little later, as we sat in a thicket of young birches on a low hill overlooking the lake, two beavers appeared a few yards offshore, swimming back and forth, casting black ripples across the rose and saffron reflections in the water. Then, as suddenly as the beavers appeared, Hastings caught my arm and pointed. A little distance down the shore a doe was materializing, picking her way daintily out of the timber, down the steep bank to the lake, as soundless as a shadow. Her red coat of late summer was shining like satin in the afterglow of sunset. She reached the water, put her muzzle down and drank deeply while the beavers played around in a fearless wilderness comradeship. Then the doe lifted her head, sharp ears pricked forward, and stood staring off toward the forest on the opposite shore. Perhaps she had prophetic visions of an antlered lover who should come that way before October had painted the last leaves on the birches. And I must mention two other deer that eluded my camera but left a lasting memory. They were a pair of bucks that came one October morning at daybreak, to feed at the back door of my hunting camp in the Lake Superior country. The hunting season was still six weeks away, and these bucks had grown unwary from months of security.

I had scattered scraps of bacon there the night before as a friendship offering to the porcupines of the neighborhood. There is a quality in the steady gnawing of a gray old porcupine in the silence of a wilderness night that lulls me to the deepest sleep.

The deer had beaten the quilled sloths to the salt-flavored bacon, however, and still lingered by the woodpile. Around them the red and golden leaves of fall made a brilliant carpet on the forest floor. Even in the gray drawn light of morning their sleek coats fairly shone, and their beamed antlers were polished and hard as steel sabers.

For a minute while I watched through a window they were utterly unaware that their arch enemy had occupied at least the cabin where they had ranged undisturbed all night. Then some subtle warning of sound or scent was borne to them from the silent camp. Simultaneously their heads were flung up, their sharp, alert ears pricked toward the door. An instant later the nearer dashed away, his white flag flashing among the birches and the balsams. Then the second one whirled. But alas for him! His first long bound brought him down with a crash upon the heap of rusty tin cans left by hunting parties of past autumns. From that clattering heap the frightened buck fled as if all the imps of the forests were at his heels, as he no doubt thought they were. And standing there in the cabin door, half convulsed with laughter, I gained one more mental picture of the whitetails that I shall never forget!

EXTENT OF WEST VIRGINIA'S FORESTS

(Continued from page 19)

which has stalked the forests since the advent of the white man.

Insects and diseases may kill forest trees but they do not necessarily deprive the forest of its opportunity to reproduce another crop of trees for the posterity of mankind. Lumber operators have frequently been required to remove everything merchantable in order to pay the costs of their operations, but in all these cases the forest has remained in a position to eventually reproduce itself even though the process might be delayed.

This is not the case where fire is involved, because fire is a forest robber which not only takes its immediate toll as it burns but by continuous and repeated burns robs the soil of the very potential value of forest reproduction.

"Across the shaken bastions of the years
March drives his windy chariot wheels of cold."

—*Arthur Davison Ficke.*

PHASES OF SEDIMENTATION IN GULF COASTAL PRAIRIES OF LOUISIANA

(Continued from page 14)

of considerable size and depth among coastal lakes, may be cited as an example of a remnant of a prehistoric marginal lagoon.

With the exception of the lake-shore escarpment on the west side of the lake formed by the prevailing south-by-southeasterly winds developing a lake-shore beach (the shell banks), the present shore line is only seemingly defined by the cessation of vegetation which at some points has encroached into water of a depth of 18 inches or more.

Open connection between it and Calcasieu Lake and thence with the gulf was maintained by a meandering tidal channel, Bayou Bois Connie, until comparatively recently, as was testified a few years ago by some of the older inhabitants of that area, who traveled by boat from Calcasieu Lake through Bayou Bois Connie into Sweet Lake before the Sweet Lake termini were artificially dammed by the excavated material from the adjacent marshes during the construction of the Sweet Lake and Intra-Coastal Canals. These former termini still appear as saddles or basins in the otherwise regular surface relief of the shore of the lake, and in them are salient angles or small outward embayments of the lake water. The type of vegetation growing on what was formerly the banks of the tidal channel is quite different from the vegetation now growing in its partially silted channel. Furthermore, borings in these outlet channels show, at a depth slightly below the present lake bottom, coarse sediments that were deposited and carried there during the time of their open connections, when tidal currents had sufficient velocity to transport them.

The antecedent history of Sweet Lake dates back to the time when a shallow sea covered all of Cameron Parish and extended northward beyond Lake Charles in Calcasieu Parish, where the perimeter of its old shore line is now marked by a surface outcrop of marine shells. Later wave action formed barrier beaches and isolated a considerable part of the seaway behind them. These beaches can be observed to-day as low ridges, one near the Cameron-Calcasieu Parish line, Hackberry-Grand Lake Ridge, and another near the southern part of Cameron Parish, Cameron-Chenier Ridge, enclosing what was formerly the Great Cameron Lagoon but which since then has been nearly filled by sediments, leaving only small isolated remnants of open water, such as Calcasieu, Sweet, and Willow lakes. Slight coastal rising may have assisted in the development of this area.

Origin of Sweet Lake from marsh fires.[1]—In contradiction, however, to the lagoonal theory in regard to its origin and normal development, plant ecologists recently offered a marsh-fire theory. This theory postulates that Sweet Lake, like James Lake south of it, was formed comparatively recently by the burning of marsh fires. These fires not only burned off the surface covering of the luxuriant vegetation, but also ignited the underlying peat and peaty clay to a depth of at least 5 feet below mean gulf level, thereby creating a basin which was subsequently filled with fresh water.

The principal weakness of this theory lies in the following facts: (1) to date no ignited peat-clay residue has been found within or near the lake; (2) neither has there been offered a satisfactory explanation of the mechanics involved in the burning of material to a depth of at least 5 feet below the ground-water table in a zone of saturation; and (3) the assumption that the small shells of the brackish water mollusk, *Rangia cuneata*, were gathered from some fossil lake in that vicinity and cast upon the ridges to form the refuse mounds, or kitchen middens, admits the former existence of a larger brackish-water lake and barrier beaches.

Origin of Sweet Lake from solution basin.—It has also been suggested that Sweet Lake may represent a solution basin overlying a salt dome. Borings and seismographic operation have definitely established the existence of an underlying deep-seated dome, but at a depth too great to assign, as the origin of a surface basin, the removal of some of its deep-seated soluble material.

LITTORAL TYPE

It is almost impossible to delimit the temporary zone occupied by shore drift in transit from the other types of mixed environment and the neritic type of marine environment in Louisiana, because of its variable shore line and the rapid dropping off of its shelf to great depths. Any attempts, therefore, to define its land or gulf limits would be more artificial than natural. Where it occurs, principally in southwestern Louisiana, it is characterized by a narrow zone of wave activity, shore currents, and tides; consequently it tends to sort and disintegrate its material. The upper limit of this zone is exposed twice daily directly to the atmosphere; therefore it is inhabited by both marine and terrestrial organisms.

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[1] Original of Plaintiff (No. 28,266), Supreme Court of Louisiana, State of Louisiana *vs.* Sweet Lake Land and Oil Company, Inc., *et al.*, pp. 81-108.

TIDAL-CHANNEL TYPE

Although tidal channels, throughout most of their length, are surrounded by the continental environment, they originated in the marine environment, and their sediments may be derived, at times and in places, from any one or more, or all, of the environments.

The entire southern part of the state is dissected by tidal inlets and thoroughfares, maintained by waves and tidal currents serving as flowing water connectives, for considerable distances inland, at times, between the land and the gulf. These are locally termed bayous and passes. Some of them meander in their tortuous channels and eventually dissipate themselves in the marshes, but others maintain open connection between inland lakes, of either the lagoonal or deltaic type, and the gulf. They are generally characterized by their extreme depth, narrowness, and variable length. Thoroughfares such as the Rigolets between Lake Ponchartrain and Lake Borgne, with a depth of 95 feet, are much deeper than the inlets due to the constant scouring by reversing currents.

The composition of their medium is ordinarily brackish throughout most of their length, but if they extend inland for a considerable distance, it may be fresh near their land termini.

Tidal channels have been very important as migratory highways for organisms during oscillatory or transitional changes in their environments.

EMBAYMENT TYPE

The irregular shore line of Louisiana produces surroundings favorable to the embayment of the gulf waters. Some of the embayments, such as Atchafalaya Bay, are open and subject, to a limited extent, to wave action from the gulf; others, such as Barataria Bay, are almost entirely shut off from the gulf by reefs and bars.

They represent type environments of diversity as to origin, development, size, depth (although the majority are comparatively shallow), currents (both off-shore and on-shore), and the type of organisms that inhabit them. Each embayment, therefore, becomes a separate problem of sedimentation.

MARINE ENVIRONMENT

NERITIC TYPE

The same reasons that make it difficult to define the limits of the littoral zone apply, as well, for most of the narrow shelf area of the state covered by the shallow marine waters of the gulf. As in the littoral zone, its bottom is scoured and its sediments are only temporarily deposited. They grade landward into those of the littoral type, and at its seaward limits they pass imperceptibly into the finer deposits of the deep sea. The medium is essentially marine in all places and in it live a host of shallow-water marine organisms.

Shore waves may build spits and bars such as those in Barataria Bay, being isolated by Grand Terre and Grand Islands, and the spit shown on the Cat Island, Louisiana, topographic sheet.[1] Or they may form reefs such as Robinson Reef (East Delta topographic sheet) and Birds Island (Forts topographic sheet), where the littoral currents have dropped their load in the deeper quiet waters.

CONCLUSION

Environment is the most important phase of sedimentation of the Gulf Coastal Prairies of Louisiana and a better understanding and differentiation of its multiple changes and accompanying reactions of its sediments and facies organism will ultimately lead to the integration and subsequent correlation of the sequence of deposition of its material.

PREVENTION OF FOREST FIRES

(*Continued from page 18*)

tion to them, the issuing of burning permits for all burning in the forest area and a definite patrol.

For detection of fires a system of fire lookout towers is being built up. These towers are placed 18 miles apart, which is a fair working distance for fire detection under ordinary weather conditions. The towers are 80 to 100 feet high and made of steel and have a glassed-in crow's nest at the top, in which the lookout stays when on duty. The towers are all connected in some manner by telephone so that in the event a fire is detected the lookout can immediately call the forest ranger, reporting its location. To a certain extent fire lookout towers are of importance in the prevention of fires. Anyone living or working in the community where there is a lookout tower knows that when the man is on the job any illegal fire they set will be quickly detected and the person responsible be apprehended.

Fire suppression or fire fighting will no doubt always be the important duty of the forest ranger. As soon as a fire is reported by the lookout tower or from someone else discovering it, the quickest possible action is obtained. More good can be done on a forest fire during the first hour that it burns than in the 10 hours following.

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[1] Issued by U. S. Geol. Survey, Dept. of Interior.

Prevention of Stream Pollution

Wisconsin's Method of Meeting Problem.

By L. F. WARRICK
State Sanitary Engineer
State of Wisconsin

REALIZING the necessity of proper disposal of wastes in the prevention of objectionable conditions in lakes and streams, the Wisconsin Legislature in 1925 appropriated $10,000 annually from the conservation fund for stream-pollution control activities. This fund was "to be expended in cooperation with the State Board of Health in a manner agreed upon by the Conservation Commission and the State Health Officer." The activities in the joint program developed during the fall of 1925 and extending until Jan. 1, 1927, are described in "Stream Pollution in Wisconsin," copies of which may be obtained from the Wisconsin State Board of Health.

To coordinate pollution control activities of various State agencies, the 1927 Legislature passed a bill creating a committee on water pollution. This committee is composed of the State Chief Engineer, member of the Railroad Commission designated by the commission, the Conservation Commissioner or one of his employees whom he may designate to represent the Conservation Commission, the State Health Officer or a member of the Board of Health designated by the board, and the State Sanitary Engineer or other engineer appointed by the State Board of Health. The State Board of Health through the Bureau of Sanitary Engineering is the administrative agency. The powers and duties of the committee are outlined as follows:

"(1) To exercise general supervision over the administration and enforcement of all laws relating to the pollution of the surface waters of the State.

"(2) To study and investigate all problems connected with the pollution of the surface waters of the State and its control and to make reports and recommendations thereon.

"(3) To conduct scientific experiments, investigations and research to discover economical and practicable methods for the elimination, disposal or treatment of industrial waters, to control pollution of the surface waters of the State. To this end the committee may co-operate with any public or private agency in the conduct of such experiments, investigations and research and may receive on behalf of the State any money which any such agency may contribute as its share of the cost under such co-operative arrangements.

"(4) To issue general orders and adopt rules and regulations applicable throughout the State for the installation, use and operation of practicable and available systems, methods and means for controlling the pollution of the surface waters of the State through industrial waters, refuse and other wastes. Such general orders, rules and regulations shall be issued only after an opportunity to be heard thereon shall have been afforded to interested parties and shall take effect as directed therein, which shall be not less than 30 days after publication in the official State paper.

"(5) To issue special orders directing particular owners to secure such operating results toward the control of pollution of the surface waters as the committee may prescribe within a specified time. If such results are not secured in the specified time, the committee may direct the owner to use or adopt designated systems, devices and methods for handling industrial wastes, refuse and other wastes within a specified time.

"(6) To make investigations and inspections to insure compliance with any general or special orders, rules and regulations which it may issue. In the exercise of this power, the committee may require the submission and approval of plans for the installation of systems and devices for handling, treating or disposing of industrial and other wastes.

"(7) To enter into agreements with the responsible authorities of other States, subject to approval by the Governor, relative to methods, means and measures to be employed to control pollution of any interstate streams and other waters and to carry out such agreement by appropriate general and special orders. This power shall not be deemed to extend to the modification of any agreement with any other State concluded by direct legislative act, but unless otherwise expressly provided, this committee shall be the agency for the enforcement of any such legislative agreement."

Including its organization meeting in July 30, 1927, the State Committee on Water Pollution has held 15 regular meetings for the purpose of determining most effective ways and means for carrying out these duties. In addition numerous informal conferences have been held between members in connection with administrative phases of the work involved under definite pollution control policies and procedures adopted by the committee.

(Continued on page 35)

LOS ANGELES ORDINANCE DEPRIVING OIL LESSEES OF DRILLING RIGHTS SUSTAINED

(*Continued from page 17)*

will and which in fact will enhance the value of his property. * * * The effect of the evidence is to show that the entire neighborhood at the time of the passage of the zoning ordinance was largely unimproved, but in the course of rapid development."

As it was not questioned that appellants' land is suitable for residences and very valuable therefor, and that it is in the line of development of residential districts, it would seem clear that under the general power of a city to regulate its growth, the appellee city would be entitled to restrict the use of appellants' property to such purposes as were permitted in the zone in which it had been included unless under all the circumstances as disclosed by the evidence such result would be so unreasonable and arbitrary as to justify the interference of the court under well established limitations upon the police power of the city.

In view of the surroundings of the appellants' property, the fact that it is in the line of development of the residential district of Los Angeles, that expensive dwellings had already been erected in the neighborhood, that adjacent property has been improved by opening streets and paving and sidewalking the same, there would seem to be little doubt of the right of the city under zoning ordinance to prevent the use of appellants' property for industrial and manufacturing plants or the erection of gas works which would be entirely out of harmony with the development of the neighborhood. The situation disclosed by this record, however, does not deal primarily with the right to improve the appellants' property by the erection of buildings thereon, but rather with the right of the owner to produce from the soil the minerals therein contained.

In this connection our attention is called to the decision of the Supreme Court in Pennsylvania Coal Co. v. Mahon, 260 U. S. 393, wherein a statute passed by the Legislature of the State of Pennsylvania was held invalid, as taking from the Pennsylvania Coal Co. its right to mine coal which it had reserved in the deeds it had made to the surface, the grantees in the deed assuming the risk and waiving all claims of damages which might result from mining operations of the grantor.

The State Legislature prohibited mining in such fashion as would interfere with the structures erected by the grantees upon the surface, thus in effect giving to the grantees a security in the enjoyment of the surface which they had not bargained nor paid for, and depriving a grantor of the right it had reserved in its deed to the grantee. It was held that this was so unreasonable an exercise of the police power that it was violative of the constitutional rights guaranteed to the Pennsylvania Coal Company and therefore void.

In arriving at this conclusion the Supreme Court called attention to the fact that the statute in question did not apply to land where the surface "is owned by one party," and another party seeks to develop such inherent qualities of the land and a regulation which prohibits an owner from erecting upon his land structures which he believes will, and which in fact will, enhance the value of his property.

It is conceded in the case of Zahn v. Los Angeles supra, that the appellants' property was worth more for business purposes than for residence purposes, and the taking of this difference in value was just as real as in the case where an owner is prohibited from developing the mineral resources of his land. In each case there is a definite loss of value which is prohibited by the Constitution as a taking of private property without compensation unless such taking is in the exercise of the police power. The fundamental question, then, in each case is whether or not the owner has been deprived of property by legitimate exercise of the police power of the State in its efforts to promote the general welfare of its citizens.

If there is any difference between the taking of the unearned increment by zoning ordinances and the taking of the inherent value of the soil or its contents, it arises from the fact that it might be deemed unreasonable to prevent a man from developing natural gas upon his property and reasonable to prohibit the erection of gas works because in the former case gas works can be erected in other suitable zones or districts in the city, while in the case of natural gas it must be reproduced from the land in which it exists.

It might therefore be held that an ordinance is reasonable where it requires the establishment of gas works or oil refineries in a certain zone and prohibited in others, and might be unreasonable and therefore void because it prohibited an owner from producing natural gas from the land in which it was located. In either event, however, there can be no question of the inherent right of

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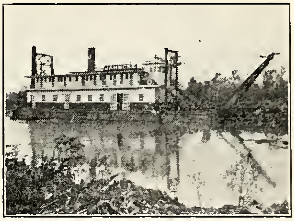

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the city to control or prohibit such production, provided it is done reasonably and not arbitrarily. In that event the loss must fall upon the owner, whether it prevents him from erecting structures or establishing industries which he desires to erect or establish, or wether it prevents him from developing the inherent potentialities of his land.

Before proceeding with a further discussion it may be well to distinguish between the functions of the legislataive body in which is deposited the police power and that of the courts to which the citizen may appeal in the event his property is taken without compensation by an unwarranted exercise of the police power.

The legislative body entrusted with the police power has a wide discretion which cannot be interfered with by the courts. Their laws or ordinances enacted in pursuance of the police power are invested with a strong presumption of validity. If the question as to whether or not the legislation is unreasonable or arbitrary or an unequal exercise of power is fairly debatable, the legislation must be upheld as valid. Zahn v. Board of Public Works, 274 U. S. 325, supra, and cases therein cited.

FIRE HAZARD FOUND SUBSTANTIAL FACTOR

The question for our consideration then is whether or not the reaasonableness of the ordinance in question is fairly debatable. First, we will consider the matter with reference to the question of fire hazard. On the one hand it might be concluded that there was no substantial danger to adjoining property from the production of gas and oil upon appellant's land. This, however, depends upon the uncertain question as to the amount of gas and the pressure which would be developed therefrom by penetrating the oil or gas strata.

It is a matter of common knowledge that in some cases oil wells, particularly in new territory, have gotten beyond control and resulted in disastrous fire. Such a well in the heart of a great city would be an intolerable nuisance, and it is conceded could be prohibited by the city council in the exercise of its police power. In an outlying and relatively unsettled district it is obvious that the fire hazard would be much less if not entirely negligible.

The city council presumptively acted upon the theory that such a hazard was real and substantial. The trial court, after hearing the evidence, held it to be a fact that the fire hazard was real and substantial. There is testimony to sustain this conclusion. The question then is whether this court, acting upon the evidence in the record to the contrary, and upon its general knowledge the conclusions of the city council and of the trial judge are so arbitrary and unreasonable that they concerning production of oil, shall declare that may be justly disregarded as determining the rights of the appellants.

In this connection it should be observed that in passing upon the conclusions of the trial court, or the local legislative body the appellate court should give great weight to the determination of local authorities and the local courts, especially familiar as they are with local conditions. Welch v. Swasey, 214 U. S. 91, 106; Laurel Hill Cemetery v. San Francisco, 216 U. S. 358, 365; Patsone v. Pennsylvania, 232 U. S. 138, 144.

From the foregoing it would appear that the very least that could be said in favor of the validity of the ordinance is that the question of fire hazard resulting from mining operations is debatable; the diffusion of noxious and offensive gases into the surrounding dwellings is established by uncontradicted testimony; the utility of the appellants' land for residence purposes is thoroughly established and conceded; the trend of the residence district of the city toward and about the land in question is undeniable, and therefore the court is precluded from inquiring into the validity of an ordinance avowedly within the police power of the city if not arbitrary, unreasonable and unequal.

PROPERTY INVOLVED IN LINE OF DEVELOPMENT

The fact that the City of Los Angeles occupies a large amount of territory, extends more than 40 miles in a north and south direction, and nearly 20 miles in east and west direction at its extreme boundaries, and contains an area of 450 square miles, and that there are large areas of unoccupied land in the residence zone, are not material to the questions presented by the case at bar. The appellants' property is in the line of development of the city, whose rapidity of development is almost unprecedented. The uniform rule is that persons seeking to avoid the effect of an ordinance because it is unreasonable must show that it is unreasonable as to them and cannot predicate their claims upon the fact that the ordinance may be unreasonable as to others.

Appellants base their claim to the invalidity of the zoning ordinance in part on the ground that the City Council of Los Angeles permitted them to enter upon their project of oil development, and then, after they had expended $136,000 in preliminary work, repealed the ordinance

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permitting them to develop oil and enacted an ordinance prohibitoing the same. In this connection they rely very strongly on the case of Dobbins v. Los Angeles, 195 U. S. 223. Before passing on this question additional facts should be stated.

The area in which appellants' land is located was annexed to the City of Los Angeles, part in 1915 and part in 1923. Thereafter an ordinance was enacted annexing this territory to the residence zone already established in the City of Los Angeles. Application was made by the appellants to the city planning commission for recommendation to the city council of an ordinance excluding a portion of appellants' land from the residence district, and thus to permit the development of oil thereon.

This ordinance was passed in 1926 by which the appellants' land, except a strip 100 feet wide around the outer boundary thereof, and certain other portions not material here, were excepted from the residence district. On the faith of this ordinance the expenditures above mentioned were incurred, but eventually, by reason of protest from owners of residences in the neighborhood, the city repealed the last mentioned ordinance and reincorporated said land in the residence district, thus, in effect, making unlawful that which it had declared to be lawful by the ordinance upon which appellants acted. The effect of this action of the city council is to cause a direct loss to the Standard Oil Company of California to the amount of these expenditures.

NO BASIS SHOWN FOR QUESTIONING MOTIVES

The situation is somewhat analogous to that disclosed in the case of Dobbins v. Los Angeles, supra, with this notable exception, that in that case the facts stated in the bill were admitted by a general demurrer and the lower courts had sustained the ordinance nothwithstanding the allegations in the bill. These allegations were to the effect that not only was there no change in the conditions after the enactment of the ordinance permitting the erection of the gas works by Mrs. Dobbins, but that the neighborhood was occupied by oil refineries, etc., and that the city council enacted the second ordinance, not for the purpose of protecting the people in the neighborhood, but for the purpose of granting a monopoly to another gas company operating in another district. It was alleged and admitted that there was no other reason for the enactment of such an ordinance.

In that case counsel relied upon the presumption in favor of the validity of the legislation and a wise exercise of legislative judgment and ignored the allegations tending to show that the exercise of power in that case was not only unreasonable, unequal, arbitrary and unjust, but corrupt. In the case at bar the situation is almost reversed. In this case the city attenmpted to show the proceedings before the city planning commission and the evidence there adduced for the purpose of sustaining the action of the city council, based upon the recommendation of the planning commission as reasonable under the circumstances, and the appellants objected to that evidence upon the ground that the "court cannot inquire into the motives of the city council which prompted the council to enact the ordinance, nor into the facts before the council at the time it acted."

NO VESTED RIGHTS DUE TO FIRST ORDINANCE

Whether or not it was necessary to fortify the presumption in favor of the validity of the legislation need not be determined, but it is clear that the appellants are in no position to assert that the motives for the enactment of the legislation were improper, and they do so, but rely entirely upon the evidence as to the nature and character of the property and the surrounding territory as demonstrating that the ordinance was, however well intentioned, entirely unreasonable and arbitrary.

It has uniformly been held that there is no vested right in a permit or an ordinance of the nature of that involved here by which the boundaries of the residential zone were changed to exclude appellants' property therefrom. That being true, appellants are without remedy unless on the whole it can be said that the final action of the city council, by which it again included their property in the residence zone, was so wholly unreasonable and unjustifiable under the circumstances as to be void.

In this connection it is proper to consider the changes in the situation of the zoning district brought about by the ordinance excluding the lands of appellants from the residence district, but a mere change of policy or of legislation, however unfortunate the result may be to appellants, does not justify the courts in declaring void an ordinance exercising legitimate police power.

The loss suffered by the appellants by reason of this change in legislative policy is no more a taking of their property than is the loss resulting to them by reason of being deprived of the right to develop the oil on their property or the right to use their land for other than residence purposes.

Judgment affirmed.

PREVENTION OF STREAM POLLUTION

(Continued from page 29)

Complete and detailed records concerning committee activities have been kept by the secretary in the minutes of these meetings. Progress reports have been prepared annually by the Bureau of Sanitary Engineering of the State Board of Health, these being made available to the public in the multigraphed report of the State Engineering Department for the fourth quarter of each year. The activities are also summarized in printed form in the biennial reports of the State Board of Health.

Elimination of objectionable stream pollution is the ultimate goal of the sewage treatment, waste utilization and stream improvement program adopted and now being carried out with Wisconsin municipalities and industries. This goal is not quickly and easily attained.

There are many exceedingly important phases to be considered in both the conception and development of any successful stream conservation program. They are legal, scientific, and economic in nature, and are so interrelated that none can be safely overlooked. The major public interests of the State-agriculture, industrial, and the great outdoors are still involved. Benefits derived by controlling the pollution of streams should be consistent with the general welfare of all these interests.

Accordingly, it has been the object of those in charge to ascertain necessary facts concerning cases of serious stream pollution.

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ADDITION TO YELLOWSTONE PARK OF NATIONAL FOREST TRACT URGED

(*Continued from page 21*)

area be retained within the Yellowstone National Park.

(b) That area B be retained within the Yellowstone National Park. The present boundary is well defined and provided with trails used by both the Park Service and the Forest Service for administrative purposes.

RESERVOIR ON TETON RIVER IS ADVOCATED

III. Southwest Boundary, Bechler River meadows region (area E. Map Exhibit I).

(a) The Bechler River meadows are of scenic charm and afford an engaging foreground to natural features of unusual interest. The foothills immediately surrounding the basin and outside the area which it is proposed to eliminate, include the beautiful falls of Dunanda, Silver Scarf, and Ouzel, which are embraced within the panorama of the meadows. This region with its setting and surroundings forms a worthwhile part of the Yellowstone Park.

The commission considered the proposal of an organization of farmers along Fall River, Teton River, and the North Fork of the Snake River in Idaho, to secure an additional irrigation water supply by constructing a storage reservoir in the Bechler Basin. The prosperity and continued development of this pioneer community is dependent upon a more stable and abundant water supply, particularly since the present economic condition of agriculture demands diversification of crops.

It is contended that the Bechler River meadows, within the Yellowstone National Park, and immediately adjacent to the southwest boundaries, provide the only economically feasible reservoir site.

The commission has satisfied itself, by technical examinations in the field (Part II, Report, Exhibit II, C. A. Bock) that there is an available site on the Teton River, outside of the Yellowstone National Park, which in its judgment proves to be more economical and serviceable to the local irrigation interests than the proposed Bechler River site. Therefore, in the absence of a demonstrated public necessity, the commission finds that it is unnecessary and undesirable to break into the integrity of the Yellowstone National Park by the elimination of the Bechler River meadows from its boundaries.

HIGHWAY APPROACH PROJECT FAVORED

(b) It has been suggested that a road should be constructed to connect Ashton, Idaho, with Old Faithful, by way of the Bechler River Canyon, to afford an additional gateway and ready access into the Yellowstone National Park. This Commission wishes to indorse this project, believing that such a road would open to the public an area of unique scenic charm, passing along the Bechler River meadows, and through Bechler Canyon, affording intimate and engaging views of a series of beautiful falls and cascades. A location for such a road is feasible, and can follow the high contours of the foothills above the Bechler Basin.

IV. Supplementary. Upper Yellowstone-Thorofare region (area D, Map Exhibit I).

(a) General legislation is desirable to protect from abuse tracts designated by the National Forest Service or by the Congress as Federal wilderness areas. The designation of these areas, such, for example, as area D (Upper Yellowstone-Thorofare region) which the commission recommends be formally established by the Forest Service, is becoming of increasing importance in the development of the recreational plans of the Government to meet the public demand.

The mining laws permit the prospecting and development of mineral wealth within the national forests, but a mere mining location should confer on the locator no right to the surface of the land covered by the location other than the right to occupy the area reasonably necessary to carry on prospecting and mining.

The taking of any resources other than mineral deposits, or the occupancy of the land for any purpose other than prospecting or mining, should be forbidden, and legislation to this end is suggested.

(NOTE—Commissioner Ramsdell does not concur in Conclusion IV (a), since it is not in his opinion pertinent to the Yellowstone boundary question.)

The minority conclusions of Mr. Ramsdell are as follows:

VII. Conclusions:

(1) Areas C and D in toto; the addition of the 1915 coordinating commission is preeminently worthy of national park standards.

(2) It is a topographic unit, and easier to maintain as a park addition.

(3) The fast decreasing herd of moose (Yellowstone Lake to the divide) needs protection, and that immediately.

(4) When the 129 big-game hunters of areas C and D, in the Fall of 1929, kill only 2½ per cent as many elk as they kill in the Jackson Hole alone, it is certainly not essential to the hunting program of elk in the State of Wyoming.

VIII. Dissenting Opinion of Area C Alone (As in Majority Report):

1. The east line of area C is artificial.

(Continued on page 40)

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PURCHASE OF FISHING GROUNDS BY STATE URGED IN COLORADO

(Continued from page 24)

fishery industry fish and game all over the United States must be largely maintained by artificial propagation. Production and distribution by Federal and State agencies has developed into a business requiring an investment and expenditure equal to that of any commercial enterprise of like proportion, the difference being that there is no direct financial return to the agency for its output. It must look to outside sources for revenue to operate.

Conditions are not as yet fully realized by a public generally inclined to regard the "American system of free hunting and fishing" as a guarantee of a plentiful supply of game and fish for everybody without cost and freedom to take it on anybody's land. As a matter of fact there is no such thing as an "American system of free hunting and fishing." What we have is an American custom surviving from pioneer days when game and fish were abundant, were used for food by everybody alike, and man put few restrictions upon his neighbor. It is a custom we all like and have no intention of discarding no matter what influence is brought to bear, but we will have to adjust ourselves to changed conditions and establish a system which will unite the apparently conflicting interests of the public, the sportsmen and the landowners.

Our "neighbor" may now come from a thousand miles away, and there are so many of him that the landowner does not expand with his former hospitality. He hangs out a sign "No fishing or hunting on this property" and he probably gets a State license for a preserve which enables him to enforce his order. Nevertheless, there are plenty of landowners, be they farmers or city men, who, true to tradition, would no more refuse their fellowman fishing privileges on their place than they would refuse him a good meal when he was hungry.

Even when property is posted, it is the exception for the owner to refuse permission to fish when it is asked, unless he has posted his land with the intention of selling the right to go on it to fish. The usual fisherman does not mind paying a small fee, if it is demanded, but he hates being hijacked, especially when the landowner is reaping a benefit in having his streams stocked with fish by the State, a fact he occasionally loses sight of.

State-owned fishing grounds would do away with all this. The fisherman would not be dependent upon the landowner for his pleasure. The hospitably-inclined landowner would be overrun with strangers and would extend a freer welcome to those who did request the privilege of his land, and the profiteer would be eliminated. The fisherman would undoubtedly rather pay an extra 50 cents for his license if he knew it was to be spent to buy fishing grounds than he would to pay 50 cents to fish for a few days on private property.

There is room in the State for private clubs and public fishing waters, under proper regulations, and each can benefit the other. The State reserves the right and privilege of all persons to fish in any stream flowing through the premises of all lands it leases or sells, and lands on the public domain are open to fishing unless the Government grants a special use permit for fish cultural purposes, which is only done in exceptional cases. With these open lands and a reasonable area of State-owned fishing waters, the situation would right itself.

Whether the sportsman should bear the entire expense of buying public fishing and hunting areas is a question. It is argued that as the pursuit of fish and game is purely a sport, it should be paid for by those who enjoy it, and it is true that a $2 hunting and fishing license buys more enjoyment than can be obtained in any other way.

On the other hand, the public as a whole benefits in several ways. Good fishing and hunting is a big stimulant to the resort and tourist business. Hunters and fishermen are good customers of country stores as well as sporting goods houses, and they have to eat, wherever they are. The criminal ranks are not recruited from lovers of the outdoors, and it becomes a matter of civic responsibility to provide wholesome outdoor recreation not only for the younger generation growing up around us but for those who shall come after them—the future citizens of our country. What to do with spare time is a problem that confronts all social welfare workers, and is one that needs to be answered with equal opportunity for all.

Hast thou named all the birds without a gun?
Loved the wood rose, and left it on its stalk?
O! be my friend, and teach me to be thine.
—*R. W. Emerson.*

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PROPAGATION OF PHEASANTS IN LOUISIANA

(Continued from page 9)

Delaney is commissioned to carry it out, we see no reason why our native game, and pheasants as well, should not become as abundant as we choose to make them.

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ADDITION TO YELLOWSTONE PARK OF NATIONAL FOREST TRACT URGED

(Continued on page 36)

2. This line divides a valley and basin unit—part to be hunted and part to be under national park protection.

3. Thus, it will not protect and increase the moose herd as much as it should.

4. It is a most irregular, ill-shaped unit to administer; along its east, or artificial boundary, hunters could not range every Fall, as they do every Fall north of the Yellowstone National Park, thus killing the game crossing an invisible line.

5. It does not include all the Yellowstone-Thorofare watershed.

The True Sportsman will not enter a farmer's property without permission; he observes the law; he is not bloodthirsty but takes only enough game and fish to supply his needs; he recognizes that wanton slaughter is robbery of others and a reckless waste of valuable resources.

Louisiana Nature Guardians

"Upon my honor, as a Louisiana Nature Guardian, I promise to take care of all our natural friends, to guard and protect them to the best of my ability, and as far as possible influence others to do the same."

WHEN the Nature Guardian Club of Louisiana was formed several years ago, it met an instant and hearty response from the teachers and the school children all over the State. From a small interested group it has grown steadily into a mighty force of thousands of young conservationists. These children are the proud possessors of handsome lithographed badges, and certificates of membership. New Clubs are being formed each week and it is the purpose of the Eudcational Bureau to enroll every Louisiana boy and girl, white or colored, under the Nature Guardian banner.

HOW YOU CAN BECOME A NATURE GUARDIAN

YOUR PART

Consult your teacher.

Ask that the purpose and plans of the Nature Guardian Club be explained to you and the class.

Ask for an application card.

Get a responsible person to indorse it, after proving that you fully understand the duties of a Nature Guardian.

Sign the application and mail the card, or give to your teacher, to send with cards from all the class.

OUR PART

We send the application card.

We send you a handsome badge, a certificate of membership, Nature Guardian pamphlets and other literature.

This is all free, and is carried on with the purpose of instilling into the children's minds a knowledge of Louisiana's wild life and a thorough understanding of its economic value to the State.

It also aims to develop individual humanitarianism. Even within this short time an amazing improvement has ben made in the mental attitude of our young folks toward the conservation and protection of Louisiana's natural resources.

MY DEAR GUARDIANS: I have just returned from a trip in the Southern part of the state, where I met and talked to hundreds of Nature Guardians. They were all so interested in the club that it made me feel very happy.

I am sure the birds, flowers, and animals in Louisiana will all be safe when they grow to be men and women.

I drove in a big van, with the stuffed birds, animals, and moving pictures stored away snugly in the back. The roads were in fine order and the beautiful trees and flowers made the trip very pleasant.

The Nature guardians told me many things that they were doing to help take care of our wild things. They seem to love all of them except the snakes. The boys do not seem to mind the snakes, but the girls don't like them even if they are not harmful. Most of you know, I am sure, that there are very few poisonous snakes in Louisiana, but watch out for rattlesnakes, moccasins and copperheads!

I want to ask the Guardians to be sure to write me about their pets, their vacations, and their trips to summer camps. I shall be glad to print anything they write, and I would especially like the boys to tell me about their fishing trips.

I send much love to all the Guardians and maybe I shall be able to meet you all in person during the next school term,

Cordially yours,
THE EDITOR.

Letters like this are constantly coming to us:

Alexandria, La.

Department of Conservation,
New Orleans, La.

Gentlemen: I would like to join the Nature Guardians, My pal would also like to join. My name is Arthur H. Desbroat, 1913 Lee St., Alexandria, La.

My pal's name is Vincent Chicola, 2003 Lee St., Alexandria, La.

Please enroll us as Nature Guardians and send us the pins and bulletins necessary.

Respectfully,
A. H. Desbroat,

J. P. Benjamin School
New Orleans, La.

Dear Editor: I want to tell you how much I enjoyed your lecture to us. I have studied about Louisiana, but you told me many things I didn't know.

The pictures you showed were most interesting, and thought the birds were lovely. We all ought to appreciate birds after hearing what friends they are to mankind. Many people fail to realize how much the birds do for them. If they did, I am sure they wouldn't harm them.

I had never seen lignite nor carbon, and I didn't know that our state produced so many furs.

What a wonderful salt mine we have on Avery Island! I'd like to go down into it. The sulphur mines too were important as they furnished such a large quantity. It is a good thing that lumber is being conserved. We are apt to be wasteful, and cutting down too many young trees is bound to lessen the supply. We must think of the generations that are to come after ours.

I think the oyster and fish industries are interesting and they bring in quite a large income, and fishing is a favorite sport of many people.

We should learn all we can about our State, and I hope you will come again sometimes to tell us more, and I know we will learn a great deal.

Sincerely yours,
Llewellyan Honeycutt.

Dear Editor: Sometime ago two ladies from the Department of Conservation came to our school. They had many birds and animals with them, and they had some wonderful moving pictures of our State's resources. They showed us skunks eating eggs out of a nest, and some muskrat houses with baby muskrats in them. Our state gets lots of money from the fur animals each year. I helped one of the ladies set up her moving picture machine. She only wanted a big boy to help her.

I am nine years old, but I am big for my age, and I am pretty strong, too.

I remain your friend,
John Dillsworth.

Dear Editor: I am going to tell you about a trip we took last Sunday to the woods. We drove nearly thirty miles before we stopped for lunch.

Mother had packed a good one, and we certainly did eat! After we packed up the things we looked for wild flowers. We found violets, wild honeysuckles, and some blue iris, or lilies, in the wet places by the railroad.

We got a big bunch of flowers and when we got home Mother put them in water in the living room.

We saw a green snake, too, but dad said it wouldn't hurt anybody. We are going again soon, and I'll write you about the trip.

Your Junior Guardian friend,
Alma Siener.

One of our earnest Nature Guardians has sent us the following:

LOUISIANA

We seldom stop to think of the resources that abound in our home State. We always marvel at the industries and resources of other states, when there is an abundance at our very door. First, think of the sulphur found in Louisiana. Millions of tons have been dug up. Sulphur is put to many uses. Then there are the salt mines in southwest Louisiana. The salt coming from these mines is enough to furnish the world. These mines are most interesting to visit. One enters upon an elevator which drops six hundred feet to the mine below. The mine itself is beautiful and looks like a town with its myriads of tiny stars sending their rays about the place from the roof part which is about a hundred feet from the ground. The mine is about two miles square and twenty thousand feet deep.

There is the limestone quarry from which so much lime is acquired. It is used in road building for cement and in paper making. Louisiana has iron ore, clay from which pottery is made. Lignite, is also found here. Oil is very abundant, the Jennings Oil Field being a great one. Oil is found all over the state. Louisiana has the largest gas fields in the whole world. And this as we know is the most necessary and beneficial. Especially for cooking, heating, lighting and for innumerable things. Gas is also used for carbon black. Carbon black is used for blackings, and for printers ink.

The forests of Louisiana were indeed extensive not some years ago. But from the sum of twenty-six million trees only four million are left. This loss has been largely due through carelessness. So many forest fires occur annually, that if the Conservation Department did not tend to them and if reforestration were not accomplished, Louisiana would soon be without trees. But if care is taken to replant little trees when the large ones are felled, the forests will be preserved and continued indefinitely. The moss that grows on the trees is very valuable, totaling about thousands of dollars per year.

From the waters about Louisiana we obtain as much fish as is needed, and more too. More shrimps are obtained then the whole United States could make use of. More diamond back terrapins are caught than in Maryland. The oyster beds are numerous. This is another good reason why the trees are so essential, because they protect the streams from drying out.

Fur bearing animals are as numerous as we Louisianaians could desire. That precious fur which is mostly obtained from the north, can also be gotten right in our own state. Then there is the muskrat of the swamps which produces valuable fur. We have wildcats, bears, timber wolves, raccoons, and many other four legged animals. We notice that weasels here in the south are generally light brown on top and white below, whereas up north during the winter they are entirely white.

In this state there is a rather extensive variety of birds, belonging to the following classes: The outlaw, song, and game birds. Many birds build their nests on the grounds, many are very useful to us, and hundreds of these are burned up every year during forest fires. Among the birds that abound here are the mocking birds, robins, woodpeckers, red winged blackbird, cardinals, bobwhites, wild ducks, wild turkeys, thrushes, and many others. There are some outlaw birds that do more harm than good. The majority of birds however do much good, and are valuable to the farmers. Thus we see that our State is not behind where resources are concerned. In fact it is far superior to other states in many things if we will but make comparisons.

A Nature Guardian.

The following are taken from the JUNIOR ITEM TRIBUNE, N. O.

THE LITTLE BIRDS

There was once a little bird,
Who hopped up in a tree
He sang a very beautiful song,
And then he looked at me.

He hopped upon my window sill,
I said, "Little Bird, how do."
But he paid no attention to me,
He shook his feathers and away he flew.

His feathers were black and red.
His bill was very yellow.
He flew into the woods.
He was a brave young fellow.

—*Sylvia Molla.*

McDonogh 31.

SPRING

BY NORMA H. MAUS.

(Age 10, 6-B Grade)

The spring, the spring, the beautiful spring,
Flowers are blooming everywhere,
Happy birds are singing here and there,
The sun is so bright, the sky's so clear
And all living things are full of cheer.

THE ROADSIDE FLOWERS

BY BLISS CARMAN.

We are the roadside flowers
Straying from garden grounds,
Lovers of idle hours,
Breakers of ordered bounds.

If only the earth will feed us,
If only the wind be kind,
We blossom for those who need us,
The strangers left behind.

And lo, the Lord of the Garden,
He makes His sun to rise,
And His rain to fall like pardon
On our dusty paradise.

On us He has laid the duty,
The task of the wandering breed,
To better the world with beauty,
Wherever the way may lead.

Who shall inquire the season,
Or question the wind where it blows?
We blossom and ask no reason;
The Lord of the Garden knows.

The following is clipped from "The American-Press, Jr.," Lake Charles, La.

THE BLACKBIRD

Dear Editor: Since this is the time of the year for blackbirds, I will tell you something about them.

The blackbird is a bird of the black bird family. The red winged blackbird is eight to ten inches in length, or about the size of a robin, and is usually associated with swamps where grow the cat-tails upon which the open, large, well constructed nests of grass is fastened. While the black red shouldered male is perched on a near by tree watcing for intruders the brown streaked female is incubating the four or five bluish, black streaked eggs. Two broods are raised annually. The peculiar call note sounds like the syllables "con-quer-ee," sung in an ascending key. In the autumn the red wings gather in flocks and spend the nights together in large "roosts." In the winter the males and females form separate flocks, the males migrating northward in the spring in advance of the females. The value of this bird as a destroyer of insects far outweighs the little damage it does to the farmer's grain.

Hoping to see my letter in the Junior News, I am,

Your junior reader,
Marvin Greenberg.

WILLIAM VISITS THE SALT MINES

Dear Editor: Last week-end we went to the salt mines at Jefferson Island.

We drove to New Iberia in two hours and 15 minutes, from there we went to Jefferson Island to see the salt mines. We had to wait for the elevator. Here the guide told us that going down all we had to do was that if we had any trouble hearing just to close our mouth and swallow.

We got in the elevator and started down for 800 feet, the first part of the shaft being concrete covered with steel.

When we got down there it was dimly lighted. When you first get out you feel kind of dizzy. I looked around to find nothing but solid salt, no earth anywhere. Looking up the ceiling was hazy with salt dust. The guide said the ceiling was 75 to 80 feet high. While we were there the guide took us away on the other side for they were blasting near us.

I saw some donkeys pulling cars. These had never been on earth for they were born down there and perhaps would spend the rest of their lives there. We looked all around and I decided I wouldn't want to work there. We also saw them crush rock.

I got a pretty piece of salt just after they blasted, which was white. Here we left because we wanted to see the track meet in Lafayette that evening.

I forgot to say that the salt was snow white except the walls were dirty from dynamite smoke.

Hoping you get to see the salt mines if you haven't already, I will say that it is worth the trip.

Yours truly,
William Boling.

P. S.—I ate so much salt I was nearly sick.

SOME OF OUR NEW NATURE GUARDIANS

Aldon Founrier, Raceland High School, Raceland
Marie Therese Ledet, St. Francis DeSales School, Houma
Euma Spillman, Convention Street School, Baton Rouge
Calvin Hebert, Thibodeaux High School, Thibodeaux
Virgie Gervois, Joseph Monus School, Arabi
Earlvin Gache, Napoleonville High School, Napoleonville
Eunice Treadway, Rigand School, Potash
Fredie Falcon, White Castle High School, White Castle
Alfred Hevert, White Castle High School, White Castle
Edith Mayon, Plaquemine High School, Plaquemine
Sybil Thompson, Convention Street School, Baton Rouge
Edwin L. Thompson, Convention St. School, Baton Rouge
Evelyn Chance, Nicholson School, Baton Rouge
Marguerite Monier, Raceland High School, Raceland
Loise Chance, Nicholson School, Baton Rouge
Barlana Beehrum, Convention Street School, Baton Rouge
Charles McArthur, McDonogh School No. 23, New Orleans
Edward Davidson, Irmadale School, New Orleans
Roland Schillair, Napoleonville Grammar School, Napoleonville
Harold Joffrion, Napoleonville School, Napoleonville
Lucille Bourg, Napoleonville School, Napoleonville
Sybile Joffrion, Napoleonville School, Napoleonville
Marguerite Schmaltz, Anna School, Anna
Charles Schmaltz, Hahnville High School, Anna
Jeanette Eckert, Dufrocq School, Baton Rouge
Anne Spencer Roberts, Dufrocq School, Baton Rouge
Helen Anne Shirley, Dufrocq School, Baton Rouge
Jane Thamon Taylor, Convention St. School, Baton Rouge
Mary Walker, Convention St. School, Baton Rouge
Charles R. McLean, Convention St. School, Baton Rouge
Rosa Lea Alesce, Convention St. School, Baton Rouge
Daisy Sicard, Convention St. School, Baton Rouge
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Marjorie Montegude, Convention St. School, Baton Rouge
Helen Chatelain, Convention St. School, Baton Rouge
Charles Little, Convention St. School, Baton Rouge
Ruth Bourgieon, Plaquemine High School, Plaquemine
Leola Caillet, Hahnville High School, Kilona
Hazel Brady, Hahnville High School, Hahnville
Courtland Kofr, Gretna High School, Gretna
Annette Bourgeois, Raceland High School, Raceland
Etienne Banderet, McDonogh School No. 11, New Orleans
Ruth Gentile, Borgnemouth School, Violete
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Fournet Moblet, Golden Meadows School, Golden Meadows
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Lorisca Doucet, Golden Meadows High School, Golden Meadows
Edith Jamlen, Golden Meadows School, Golden Meadows
Uderick Martin, Golden Meadows School, Golden Meadows
Annette Jambon, Golden Meadows

We shall be glad to hear from our members at any time, and shall be glad to print their poems, themes, and letters about any of the natural resources of Louisiana. We hope that our next issue will contain many interesting articles by members of our Club.

Address all letters to:
NATURE GUARDIAN EDITOR,
DEPARTMENT of CONSERVATION,
New Court Building, N. O.

PROGRAM TO EXTEND MARKET FOR "CERTIFIED" LUMBER IS PROPOSED

(Continued from Page 23)

disadvantages incident to the use of specifications by the medium-quantity buyers are overcome and use of the specifications by contract purchasers of both large and small amounts is facilitated.

Information to be furnished to governmental purchasers of hardwood and softwood refers to "certifying" concerns in the following numbers: 929 hardwood manufacturers; 1,078 softwood manufacturers; 490 hardwood wholesalers; 649 softwood wholesalers, and between 15,000 and 18,000 retailers.

Effective assistance in applying the certification plan under which firms agree to handle product complying with specifications has been received by the Bureau from many trade organizations.

The aims and objects of the plan for facilitating use of the Federal specifications may be outlined as follows:

PURPOSE OF PLAN

To make thoroughly effective the benefits to be obtained by producers and consumers from the well-known economies incident to mass production, mass distribution and mass consumption;

To encourage the producers to manufacture staple commodities to comply with nationally recognized commodity specifications;

To assist the producers in expanding their markets for staple commodities complying with nationally recognized specifications;

To facilitate and expand the use of nationally recognized commodity specifications by large-quantity and medium quantity buyers;

To determine the commercial acceptability of certain nationally recognized specifications;

To aid in unifying the specifications used throughout the country; and

To broaden the source of supply of products conforming to nationally recognized specifications.

It may be added that application of the plan to various industries has resulted in requests from other industries that similar action be taken with respect to their particular commodities.

Fish Supply of Nation Subject of Investigation

Federal Agency Canvassing Fisheries Throughout Country Under Authority of Recent Statute

By R. H. FIEDLER
Chief, Division of Fishery Industries, Bureau of Fisheries, Department of Commerce

In this series of articles presenting a topical survey of the Government are shown the practical contacts between Divisions and Bureaus irrespective of their places in the administrative organization. The present series deals with Statistical Research.

COUNTING the number of cattle, sheep, or hogs on the range or farm, and the number of animals slaughtered to produce beef, mutton, or pork, is a comparatively easy task for these figures on potential supply and actual production are readily available from farmers, slaughter-house records, packers, etc.; but, to make a census of fish population (potential supply) and yield (production) is more complicated, owing to the fact that one must reckon with both intangible and tangible quantities.

True figures on the yield, the tangible quantity, are readily available, but to obtain an index of the number of fish remaining in the sea, the intangible quantity, requires the solving of a more difficult problem.

If wise conservation measures are to be enacted to perpetuate the fish population, if the element of "luck" in making the catch is to be removed, and if the fishing industry is to be supplied with trade and market or distribution statistics, it is necessary that figures be collected on the fishing industry.

These will show not only the yield of the fisheries and manufactured products, but also record a fairly accurate index of relative abundance, or, in other words, changes in the population of fish in the sea. This is the aim of the statistical work of the Bureau of Fisheries.

After the Civil War our fisheries were prosecuted with renewed vigor, and it was not long before some species were showing signs of depletion. Scientists turned their attention to this matter, but, in conducting their studies they soon recognized that there existed a dearth or utter absence of any reliable fishery statistics for the United States or Alaska.

With this in mind, after Congress, in 1871, created the position of Commissioner of Fish and Fisheries, it was shortly realized that one of the functions of this position (which developed into the United States Commission of Fish and Fisheries, and subsequently the United States Bureau of Fisheries) should be the collection and dissemination of statistics of fishery production and commerce. In view of this, authority was obtained for a statistical canvass of the fisheries of all our coastal and lake sections for 1880. In succeeding years funds would not admit of the canvassing of but one or two geographical sections annually, and thus these figures lose much of their value, owing to the fact they may have been obtained for a season of unusual abundance or scarcity.

During the past 50 years the fishing industry had grown to such large proportions that it became obvious that more frequent canvasses were necessary to obtain reliable figures. The wisdom of this was recognized in 1930 when Congress passed an act, under the provisions of which, the Bureau will be able to make a canvass of the entire country in the course of the next five years. Thus far a complete canvass has been completed for all our coastal and lake regions for the calendar year 1929. The canvass of these sections will be repeated annually. It is hoped that it will be possible to make an annual canvass of the Mississippi River drainage area as well.

Considerable difficulty is experienced in obtaining statistical data on the fisheries, not only due to their scattered distribution which requires laborious travel to out-of-the-way places not readily accessible by rail or highway, but, also because the nomenclature of common names for fishes is not uniform. A sheep is a sheep whether raised in Maine or Colorado. So, with other products, such as wheat, beans, or tomatoes. But, in the fisheries, a trout taken in the lakes may be a lake trout; when taken in a stream it may be a brook trout, a rainbow trout, or even the well-known black bass; and when taken in the sea it may be a steelhead trout, or a squeteague, a member of the croaker family. So, while all these species may be known locally as trout they differ from one another as widely as do cattle and sheep; hence, your statistical expert must be able to determine the species enumerated and properly classify it.

For this reason it is necessary that the Bureau's statistical agents be well versed in the fisheries so that they are able to distinguish between the species. As a general rule the Bureau's agents have training in fisheries biology, as well as having a knowledge of the commercial fisheries. Many of them have graduated from a college of fisheries, or have taken college courses which help to fit them for such work.

In conducting the statistical surveys, the Bureau dispatches these trained agents to the sections to be surveyed early in each calendar year to obtain figures on operations for the previous calendar year. They endeavor to interview each fisherman in a given locality, and where this is impracticable the data are obtained from the shippers or others in a position to give reliable information. Virtually all wholesale and manufacturing firms are visited as well as captains of all fishing vessels over five net tons capacity.

Some States collect statistics for those fisheries within their borders. While these are not always in the form best suited for the Bureau's purposes they are used to the fullest extent possible. To aid in this connection the Bureau is endeavoring to have the States standardize the collection of fishery statistics so that duplication will be avoided. Should this meet with favorable reception it would be possible for the Bureau to become a clearing house where State records are combined to obtain figures for the country as a whole, and thus reveal the condition and trend of each important fishery throughout its entire range, which in some cases may cover our entire coastline.

Exceptional cooperation in standardizing the collection of fishery statistics has been obtained from the States on the Pacific Coast, those along the Great Lakes, and in the States of Virginia and Connecticut. Only partial surveys need be made in these States to collect the missing data not obtained by the States. In Alaska the Bureau obtains sworn statements from the operators concerning their activities.

Four main types of statistical surveys are conducted by the Bureau. These are (1) the general canvass; (2) canvass of landings at several important fishing ports; (3) canvass of special fisheries; and (4) canvasses of the industries marketing or manufacturing fishery products.

The purpose of the general fishery canvass is to obtain figures on the catch of fishery products and its value as landed by the fisherman; the quantity or number of each kind of gear used; the locality of capture; the number of fishermen employed; the number of fishing boats; and the number of net tonnage of fishing and transporting vessels.

Agents are permanently stationed at Boston and Gloucester, Mass., Portland, Me., and Seattle, Wash., and obtain statistics on the daily landings of fish. Their duties include the collection of statistics on the quantity and value of fish landed each day by each fishing vessel of five net tons or over, information concerning data of departure and arrival of the vessel, grounds from which the fish were taken, and the gear used in their capture. These statistics are published monthly and are summarized each year in the annual bulletins.

Statistics of the fishery products landed at the Municipal Wharf, Washington, D. C., are reported to the Bureau of Fisheries daily by agents of the city health department. These are compiled on an annual basis. They are not published in bulletin form, but a summary of the year's activities is published in the annual report of this division.

Special statistics are collected on the Atlantic mackerel fishery, the Pacific halibut fishery, the shad and alewife fishery of the Potomac River, and the shad fishery of the Hudson River.

Complete statistics on the catch by the Atlantic mackerel fleet are obtained by combining the figures of those landed at Boston and Gloucester, Mass., and Portland, Me., with those obtained by agents who in recent years have been stationed at other Atlantic ports where mackerel are landed. These agents obtain data on each fare of mackerel landed, similar to the data obtained on the landings by fishing vessels at the three New England ports. Complete statistics of this fishery appear only in the annual reports of this division, although the landings at the principal New England ports appear in the monthly and annual bulletins published for those ports.

Statistics of the Pacific halibut fishery are obtained by the Bureau's agent in Seattle, aided by Bureau representatives in Alaska and American consuls in British Columbia. Monthly and annual statistical bulletins are available on this fishery, being published along with the statistics of the landings of fishery products at Seattle, Wash.

Due to the importance of the Hudson and Potomac rivers in the production of shad, and the need for determining the success of fish cultural operations, surveys for statistics of the catch, value of the catch, and operating units, have been made annually for many years. On the Potomac River statistics also are obtained for the alewife fishery.

In addition to the foregoing the Bureau makes a special analysis of the catch of certain species which shows the relative abundance of the important year class in the commercial catch. This coupled with other statistical and biological data enables the Bureau to forecast the probable abundance of such species as the North Atlantic mackerel. In this manner those engaged in this fishery are enabled to outfit more intelligently for the season's activities.

Statistics are collected by the Bureau on the activities of those plants manufacturing or marketing fishery products. These include an annual canvass of the number of wholesale establishments and the amount of wages and salaries paid in these establishments; the number of fishermen manufacturing fishery products and their production; the number of plants manufacturing canned, smoked, or salted fish, or packaged fresh or frozen fish products; the quantity and value of the products manufactured; and the number of persons engaged in each phase of the industry. These figures are tabulated at the Bureau and bulletins are issued currently. Such data are invaluable to the trade in planning operations.

Figures are also published monthly on the amount of fish frozen and the holdings of fish in cold storage. These figures are supplied by the Bureau of Agricultural Economics. In addition, the Bureau obtains and publishes semiannual figures on the holdings of canned oysters. Figures on the quarterly holdings of marine animal oils also are obtained by the Bureau. These are published by the Bureau of the Census in its quarterly statement on oils and fats.

All of the figures collected by the Bureau, whether or not published in bulletin form, are published in detail in the annual report of the Division of Fishery Industries of the Bureau. Persons wishing to obtain copies of the general statistical bulletins should request that their names be placed on mailing list No. 132, and for bulletins showing the monthly holdings of fish and amounts frozen on list No. 135.

Statistics on the catch of fishery products deal with a perishable commodity—something that is not in the market in the fresh state for very long after being caught. In view of this, figures on catch would not be of direct economic importance to the commercial fisheries handling fresh fish in determining the supply of this commodity on hand even though the figures were published a month after the fish are landed.

However, the daily figures as collected by the Bureau's agents at the principal ports are available to newspaper and radio stations daily, and in this manner the trade may be informed at the time when the figures are of greatest value to them. Figures on the more staple fishery products, such as frozen, salted, smoked, or canned fish, are disseminated at intervals which make them suitable for economic purposes. Under the provisions of the act discussed above, it is hoped that market statistics may be collected by the Bureau on the daily receipts and sales of fresh fish at certain strategic consuming centers of the country. From these producers, shippers and distributors will be able to gauge the movement of fresh fish to market.

The statistical data collected by the Bureau are used for biological purposes in the conservation of our fisheries, and for economic purposes in guiding the commercial activities in these fisheries. In the first instance they reveal the condition and trend of our fisheries by showing the production of each species, the productivity of each fishing ground, the productivity per unit of gear employed in their capture, and in some instances the amount of fish captured during short intervals, such as per trip, day, or month.

From these data it is possible to arrive at a fairly accurate index of relative abundance, or the changes in the population of the fish in the sea. This information when correlated with life history studies, is used to promulgate conservation measures; to show the need for and results of fish cultural operations; and to supply a basis for forecasting future returns from the fishery.

In the second instance, statistics on the catch or yield supply the fishing trade, such as wholesalers, canners, retailers, and also consumers with data on the amount and value of the catch, seasons of abundance, and sources of supply. They provide knowledge to boat and vessel builders, engine manufacturers, cordage and net makers, ship chandlers, and others catering to the fisheries as to where markets for their products exist.

The Federal Government also finds these statistics invaluable in determining matters of governmental policy with respect to tariffs and treaties dealing with fisheries. In the latter respect it is interesting to note that, through a vote of the Halifax Commission, Great Britain was awarded the sum of $5,500,000 on March 3, 1877, as compensation for the privilege of inshore fishing in Canadian waters by our fishermen in return for the privilege of free imports into this country of Canadian fish products. This money was used to create a trust fund and the interest accruing each year is used to subsidize Canadian fishermen in their commercial activities. The belief has been widely held that had our Government had sufficient statistics to provide a true picture of the course of development of the fisheries that this amount would have been greatly reduced.

BOBOLINK

Daisies, clover, buttercup,
Red-top, trefoil, meadow sweet,
Ecstatic wing, soaring up,
Then gliding down to grassy seat.

Sunshine, laughter, mad desires,
May day, June day, lucid skies,
All reckless things that love inspires,
The gladdest bird that sings and flies.

Meadows, orchards, bending sprays,
Rushes, lilies, billowy wheat,
Song and frolic fill his days,
A feathered roundeau all complete.

Pink bloom, gold bloom, fleabane white,
Dew drop, rain drop, cooling shade,
Bubbling throat and hovering flight,
And jubilant heart as e'er was made.

—JOHN BURROUGHS.

* * *

SPRING PROPHECIES

Today the wind has a milder range,
And seems to hint of a secret change;
For the gossipy breezes bring to me
The delicate odor of buds to be
In the gardens and groves of Spring.

The early grass in a sheltered nook
Unsheaths its blades near the forest brook;
In the first faint green of the elm I see
A gracioius token of leaves to be
In the gardens and groves of Spring.

The peach trees brighten the river's brink
With their dainty blossoms of white and pink,
And over the orchard there comes to me
The subtle fragrance of fruit to be
In the gardens and groves of Spring.

The rigor of Winter has passed away,
While the earth seems yearning to meet her May,
And the voice of a bird in melodious glee
Foretells the sweetness of songs to be
In the gardens and groves of Spring.

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